MINE OPERATING PLAN

APPLICATION 04-105774
MINERAL MATERIALS

SOUTHWEST ¼ OF SOUTHEAST ¼ OF SECTION 13, T7N, R7W MARICOPA COUNTY, ARIZONA

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
2901 WEST DURANGO STREET
PHOENIX, ARIZONA 85009
(602) 506-6798

DECEMBER 8, 2000

Prepared for

Minerals Section
Natural Resource Division
Arizona State Land Department

Prepared by:

Brown and Caldwell
3636 North Central Avenue, Suite 200
Phoenix, Arizona 85012
(602) 222-4444

3636 North Central Avenue
Suite 200
Phoenix, AZ 85012-1931

Tel: (602) 222-4444
Fax: (602) 222-4466

December 12, 2000

BROWN AND CALDWELL
Environmental Engineering & Consulting

Mr. Gary D. Slusher
Arizona State Land Department
Minerals Section
1616 West Adams
Phoenix, Arizona 85007

15-19422/001

Subject: Final Mine Operating Plan
Forepaugh Mineral Pit
Maricopa County, Arizona
Application No. 04-105774

Dear Mr. Slusher:

Brown and Caldwell is pleased to submit, on behalf of Maricopa County Department of Transportation (MCDOT), three copies of the Mine Operating Plan (MOP) for the above-referenced Site lease application.

If you have any questions concerning this document, please call Ms. Janice Petticrew or Mr. Tony Potucek at (602) 222-4444. We appreciate the opportunity to complete this work for you.

Very truly yours,

BROWN AND CALDWELL

Tony L. Potucek, R.G.
Project Manager

Janice Petticrew
Environmental Scientist

TLP:JMP:sw
Enclosures

cc/enc: Mr. Leon Adair, MCDOT
Ms. Hedy Plowman, MCDOT

cc: Mr. Rob Matter, Brown and Caldwell
Mr. Jim Robison, Brown and Caldwell

MINE OPERATING PLAN

APPLICATION 04-105774
MINERAL MATERIALS

SOUTHWEST ¼ OF SOUTHEAST ¼ OF SECTION 13, T7N, R7W MARICOPA COUNTY, ARIZONA

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
2901 WEST DURANGO STREET
PHOENIX, ARIZONA 85009
(602) 506-6798

DECEMBER 8, 2000

Prepared for

Minerals Section
Natural Resource Division
Arizona State Land Department

Prepared by:

Brown and Caldwell
3636 North Central Avenue, Suite 200
Phoenix, Arizona 85012
(602) 222-4444

TABLE OF CONTENTS

PAGE

TABLE OF CONTENTS – CONTINUED

PAGE

TABLE OF CONTENTS – CONTINUED

PAGE

TABLE OF CONTENTS – CONTINUED

PAGE

TABLE OF CONTENTS – CONTINUED

PAGE

LIST OF FIGURES

LIST OF APPENDICES

1.0 ENVIRONMENTAL ASSESSMENT

This report presents information in support of Maricopa County Department of Transportation's (MCDOTs) proposed lease for the mining of sand and gravel material from a Site located on State Land in Northwestern Maricopa County, Arizona. The proposed operations would take place over a 10-year period. The operations would include the excavation and removal of common variety material, which would be removed off Site for use on Maricopa County roads or for further processing.

The primary issues identified for this project Site include:

1. Installation of access roads, gates, and fences

2. Protection or replacement of a livestock corral

3. Protection or salvage of native plants located within areas planned for disturbance

1.1 INTRODUCTION

1.1.1 Purpose and Scope of Assessment

The purpose of this Environmental Assessment (EA) is to identify, address, and assess existing environmental conditions relative to a proposed mining operation on 40 acres of Arizona State Trust Land. This EA will present background information and baseline data required for the evaluation process of the proposed mining operations.

1.1.2 Location and Legal Description

The Site is presently referred to by MCDOT as the Forepaugh Mineral Pit due to its proximity to Forepaugh Hill. The Site is located along the north side of United States (US) Highway 60, approximately 9 miles west of Wickenburg in Maricopa County, Arizona.

The Site is surrounded by primarily undisturbed native desert. The topography of the Site is generally level, and gently downward sloping to the northwest. The elevation at the Site is approximately 2,560 feet above mean sea level (amsl). Geographic coordinates are approximately West Longitude 112 degrees, 56 minutes, 10 seconds and North Latitude 33 degrees, 56 minutes, 40 seconds (Figure 1).

The legal description for the Site, provided by MCDOT, is as follows:

> Southwest Quarter of the Southeast Quarter of Section 13, Township 7 North, Range 7 West of the Gila and Salt River Base Line and Meridian, Maricopa County, Arizona

1.1.3 Access

The Site is located along the north side of US Highway 60, approximately 9 miles west of Wickenburg, Arizona. Access is via an unpaved road off US Highway 60 through a gate in a barbed-wire fence. The road continues north through the Site, around the west side of the former gravel pit where the road divides to continue northeast and northwest across the Site at the northwest corner of the former gravel pit (Figure 2). In order for excavation of material to begin, the road will require modification to allow access by large equipment. A second gate may be installed to allow the local rancher access to the corral. The Arizona Department of Transportation (ADOT) will require MCDOT to obtain an Encroachment Permit to use State highway right of way to access the Site. MCDOT will obtain this permit.

1.1.4 Operator Contact Information

The operator of the proposed mining operations at this Site will be:

> Attention: Mr. Leon Adair
> Maricopa County Department of Transportation
> 2901 West Durango Street
> Phoenix, Arizona 85009
> (602) 506-4684

1.2 LAND OWNERSHIP AND CURRENT/PROPOSED LAND USE

1.2.1 Project Site

The project Site is located on Arizona State Trust Land and is managed by the Arizona State Land Department (ASLD).

The Site is not currently used for sand and gravel mining; however, it is included in a larger area leased by Mr. Robert F. Echeverria for livestock grazing. ASLD does not have any other leases on file for the Site.

1.2.2 Adjoining Lands

The lands adjoining the proposed mining operation are also State Trust Lands, except for the property located immediately east of the Site. This land is privately owned and appears to have been a small mine claim. There is an abandoned well on the adjacent property. The current use of all of the surrounding lands appears to be grazing.

1.2.3 Existing/Past State Trust Leases

ASLD conducted a review of former leases for the Site. The leases found by ASLD include only a livestock-grazing lease held by Mr. Echeverria for an area that includes the Site. Brown and Caldwell was informed by ASLD that the ADOT formerly mined the Site. However, ASLD did not have any mining leases for the Site to indicate that ADOT leased the Site in the past. Mr. Gary Slusher with ASLD informed Brown and Caldwell that this was not an uncommon situation. ADOT apparently had the authority in years past to use any State Trust Land as necessary to support their road construction efforts without obtaining leases. This situation has changed in more recent years.

Brown and Caldwell contacted ADOT concerning any information that they may have concerning the Site. One file was provided which provided limited soil testing information conducted by ADOT on the Site in 1931. Additional information was not available from either ASLD or ADOT.

1.2.4 Background/Land Use History

Historic information concerning the Site was not readily available. ADOT and ASLD were contacted concerning past leases on the Site. It appears that the Site was used by ADOT as a material source (gravel) pit sometime within the last 60 years, the remains of which are still present on the Site today.

The only aerial photograph available for the Site was provided by ADOT and was dated 1990. Included in Appendix A of a Phase I Environmental Site Assessment (ESA) report for the Site is a copy of historical topographic maps provided by Environmental Data Resources, Incorporated (EDR). Based on this limited information, it appears that at some point between 1931 and the present day, the Site was mined for aggregate material by ADOT. Due to the mature vegetation growth present in the bottom of the former gravel pit, it appears that the Site has not been mined for at least 5 or more years. Brown and Caldwell observed visual indications that the Site most likely has only been used in the last few years for livestock grazing.

1.2.5 Land Use Compatibility

The proposed land use is compatible with the adjoining lands at this time because there are no developed urban or suburban uses in the area. The proposed land use will be performed in a manner that will allow continued use of the area outside of the former gravel pit for livestock access and grazing. MCDOT is proposing to move the access road and gate to the west to avoid potential conflicts between the gravel and cattle operations. Figure 2 shows the proposed access route. MCDOT will coordinate with the local rancher, Mr. Echeverria, to arrange for access to the livestock corral area.

ASLD requested information from other ASLD departments concerning potential conflicts with the proposed use of the Site. There were no conflicts reported. The responses from the various ASLD departments are included in Appendix H.

1.3 SETTING

1.3.1 Site and Vicinity Characteristic

The Site is located west of Wickenburg, Arizona, which is northwest of the Phoenix metropolitan area. The area is currently undeveloped native desert land or open space. US Highway 60 borders the south side of the Site. The surrounding area is composed of State Trust Land and privately owned undeveloped land that is generally used for livestock grazing (Figures 1, 2, and 3).

1.3.2 Climate

The climate in the area of the Site tends to be characterized by high temperatures and low precipitation. Brown (1994) indicates that the average annual precipitation recorded at Aguila (12 miles west of the Site) is 76 millimeters and at Wickenburg (9 miles east of the Site) is 109 millimeters. The average annual temperatures in the area of the Site appears to be approximately 9 degrees Celsius (C) in the winter and 29 degrees C in the summer (Brown, 1994).

1.3.3 Geology and Soils

1.3.3.1 Regional

The Site is located within a broad alluvial basin within the Basin and Range Physiographic Province, which includes much of southern and western Arizona. The Basin and Range Province is characterized by a series of northwest-trending, fault-bounded mountain ranges separated by alluvial valleys.

Mountains composed primarily of granite, metamorphic and volcanic rocks, and minor amounts of sedimentary rock surround the area. The area of the Site is underlain by semi-consolidated, basin-fill sediments of varying thickness, and the surrounding valley floor contains irregular fluvial and lacustrine deposits of sand, gravel, silt, and clay.

1.3.3.2 Local

The only information available concerning the local Site geologic information was provided by ADOT. Their information is dated 1931, which has been included in Appendix G of the Phase I ESA (attached to the Mine Operations Plan [MOP] as Appendix A). The soils beneath the Site appear to be consistent with the general soil information provided below.

1.3.3.3 Soils

According to the United States Department of Agriculture (USDA) Soil Conservation Service, "Soil Survey of Aguila-Carefree Area, Parts of Maricopa and Pinal Counties, Arizona," the Site is located on the soils of the Mohave-Continental-Guest. These soils are generally nearly level and gently sloping, clayey and loamy soils located on fan terraces and flood plains. The soil complex listed for the area of the Site is Nickel-Cave, which consist of 50 percent Nickel gravelly sandy loam and 35 percent Cave gravelly loam. These soils have a moderate permeability, available water capacity is low, runoff is medium, and the hazard of water erosion is slight. These soils may have a high lime content. A copy of the soil survey map is included as Figure 5.

1.4 AFFECTED ENVIRONMENT

1.4.1 Water

1.4.1.1 Surface Water and Drainage

Elevation at the Site is approximately 2,560 feet amsl as illustrated on the 7.5-minute United States Geological Survey (USGS) topographic quadrangle map of Outlaw Hill, Arizona (Figure 3). Surface runoff from the property, in general, moves across the Site into the former gravel pit, or toward the northwest. However, the Site is generally level; therefore, surface water most likely flows off Site along all four borders.

EDR provided the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map information for the Site. According to Community Panel Number 04013C0225D/CWNP, obtained by EDR in 1999, the Site is located in the 500-year flood zone. A copy of the EDR report with a map showing the flood zone is included in the EDR NEPACheck™ report included in the MOP as Appendix D.

Two small tributary washes are located near to the Site. One wash borders the Site to the northeast (Figure 4). Another dry wash is located within 1/8-mile west of the Site. No washes cross through the Site.

The proposed area of mining will not extend into any delineated FEMA 100-year floodplains. Therefore, the project activities will have no effect upon a regulatory floodplain or floodway.

Surface runoff draining from the Site will be contained and collected into the proposed and former mining area. This runoff will drain into the sand and gravel mining pit where it will be held in retention until it percolates into the ground or evaporates. The volume of runoff anticipated from the 40-acre Site is minimal and will not interrupt the intermittent mining activities conducted by MCDOT.

1.4.1.2 Groundwater Hydrology

Most of the groundwater in the McMullen Valley Area is derived from the deep alluvial soils between the mountain blocks. The depth to groundwater in the vicinity of the Site is approximately 588 feet below ground surface (bgs), based on a 1981 groundwater data map provided by the Arizona Department of Water Resources (ADWR). According to the map information, groundwater flow in the vicinity of the Site appears to be toward the west to southwest. A copy of the 1981 ADWR groundwater data map is included as Figure 6.

It should be noted that regional hydrogeologic data may not predict Site-specific conditions, such as isolated perched-water systems or local variations in groundwater flow due to recent precipitation or high-volume pumping in the area.

1.4.1.3 Ground/Surface Water Quality

The proposed project activities at the Site will not result in any degradation of surface water quality. A majority of the runoff from the Site will be contained within the excavation pit. Runoff leaving the Site will be unimpacted surface water runoff resulting from precipitation only. Surface runoff from areas of activity will be directed to the mining area where it will be held in retention in the pit area. The only operations at the Site will be excavating material and hauling the material by truck from the Site. There will be no materials processing on Site. The results of the Phase I ESA (Appendix A) indicate there are no recognized environmental conditions at the Site that may cause an impact to surface or groundwater quality.

1.4.2 Biology

1.4.2.1 Native/Protected Plants

The results of the survey indicate that native vegetation exists at the Site. Those portions of the Site that have been previously disturbed, such as the bottom of the former gravel pit, are most likely to contain the native vegetation, which has re-established itself since operation of the Site ceased. The historic and current biotic community in the project area is the Lower Colorado River Valley subdivision of Sonoran Desertscrub, characterized by creosotebush (*Larrea tridentata*), white bursage (*Ambrosia dumosa*), prickly pear and cholla cacti (*Opuntia spp.*), velvet mesquite (*Prosopis velutina*), and foothills paloverde (*Cercidium microphyllum*) (Brown 1994). Heavy grazing by cattle through the years has resulted in a predominantly creosote community.

The Arizona Department of Agriculture and Horticulture, Native Plant Division, conducted a survey of the native plants at the Site on August 25, 2000. The types of plant species identified by the Arizona Department of Agriculture are creosotebush (*Larrea tridentata*), foothills paloverde (*Cercidium microphyllum*), cholla and prickly pear cacti (*Opuntia* spp.), velvet mesquite (*Prosopis velutina*), and yucca (*Yucca* spp.). They reported finding no highly safeguarded, threatened, or endangered plant species on the Site. The results of the survey and their recommendations are included in Appendix B.

The highest density of vegetation on the Site occurs within the former gravel pit. Mature, large mesquite trees and yucca plants occur throughout the pit area due to the accumulation of water in the pit.

MCDOT will make an effort to protect, relocate, re-seed, or salvage native plants at the Site prior to excavating material.

1.4.2.2 Wildlife

The Site has been subject to disturbance in the past by livestock grazing and aggregate mining. The limited area of dense vegetation within the former gravel pit appears to provide some small area of habitat use by native wildlife, such as deer, rabbit, lizards, etc. However, due to the lack of recent rain in the area, the wildlife use does not appear to be extensive and is intermittent. This limited use by wildlife is most likely because of seasonal livestock grazing in the area.

1.4.2.3 Threatened and Endangered Species

The federally listed, proposed, and candidate species for Maricopa County are included in the Biological Assessment (BA) report in Appendix B. The Site is not located within designated critical habitat for these federally listed, proposed, and candidate species in Maricopa County. The results of the BA indicate that the proposed activities at the Site will not be an impact on any federally listed, proposed, or candidate species.

The BA conducted by Brown and Caldwell indicated a very low potential for the occurrence of the Sonoran Desert Tortoise at the Site. The Sonoran Desert Tortoise has been identified near Wickenburg within 5 miles from the Site. However, the potential for occurrence is very low due to poor habitat quality of the surrounding area and seasonal livestock grazing. The Sonoran Desert Tortoise is a species of special concern in Arizona.

1.4.3 Cultural Resources (Archaeology)

On August 22, 2000, Archaeological Research Services, Incorporated (ARS) conducted a Class III (Intensive Field Inventory) Cultural Resources (archaeological) survey of the Site (40 acres or 17 hectare) in northwestern Maricopa County, Arizona. The survey area consisted of a square parcel of land measuring 1,320 feet by 1,320 feet.

As a result of the survey, one isolated artifact occurrence (a basalt core fragment) was identified and recorded within the project area. This isolated occurrence did not define or reflect significant cultural resource values in terms of National Register of Historic Places (NRHP) eligibility criteria. Its data potential was effectively exhausted through field recordation, and no further preservation or avoidance measures were recommended. Based on the results of the study, no historic properties will be affected by the proposed mineral resources pit expansion. A copy of the complete ARS report is included as Appendix E.

1.4.4 Hazardous Materials and Waste

1.4.4.1 Chemical

There will be no hazardous chemicals used for mining operations at the Site. Petroleum products will be used in the trucks and equipment at the Site; however, if fueling of equipment is necessary on Site, MCDOT will haul fuel to the Site in fuel trucks. Otherwise, all fueling and maintenance will be conducted off Site. The Phase I ESA (Appendix A) found no recognized environmental conditions at the Site relating to chemicals.

1.4.4.2 Explosives

No explosives will be used in the mining process.

1.4.5 Solid Waste and Asbestos

The Phase I ESA (Appendix A) identified previous unpermitted dumping of a large amount of trash and debris at the Site in the western portion of the former gravel pit. The debris was comprised of broken glass containers, household appliances, clothing, and other general domestic trash. Numerous empty bottles were also found that were labeled as some type of livestock antibiotic. Drums or potentially hazardous materials were not observed in the disposal area. Brown and Caldwell observed an empty compressed gas cylinder in the disposal area. A small refrigerator was noted in the disposal area that appeared to contain white insulation that is a suspect asbestos-containing material (ACM). A small abandoned travel trailer was observed at the Site located in the central portion of the south side of the former gravel pit. The small travel trailer may also contain ACM although access was not possible due to the presence of a beehive in the trailer. No other areas of dumping were observed at the Site.

MCDOT will provide for the removal of the solid waste from the Site and properly dispose in an approved off-Site facility prior to mining.

1.4.6 Air Quality

Air quality standards will be met as set forth by Maricopa County Environmental Services Department (MCESD), Air Quality Control Division. Dust particulate will be the only material discharged into the air throughout the mining process. There will be no hazardous air pollutant emissions as a result of this proposed mining process. Dust emissions will be controlled daily during mining activities in accordance with the Maricopa County Air Quality Permit that MCDOT will obtain for the operations at the Site. The permit will be maintained annually throughout the life of the lease.

1.4.7 Noise

Throughout the mining process, noise will be generated from loaders, excavators, and highway haul trucks. No blasting or drilling will take place during the proposed mining operation. There are no residential areas located near the Site; therefore, noise impacts will be minimal.

1.4.8 Visual Impacts

A majority of the mining process will be performed within the excavated pit. There will be no support buildings or facilities at the Site that would potentially cause a visual impact to the surrounding areas. There are no residential communities nearby. The nearest towns are Wickenburg and Aguila, which are over 9 miles from the Site.

The Site is located adjacent to US Highway 60 but is not located near any existing residential areas. Therefore, there will be no visual impacts in the foreseeable future. The former gravel pit is also located north of a livestock corral, which will substantially block the view of the excavation pit from the highway to the south.

1.4.9 Parks, Recreation Areas, and Wildlife Refuges

The Site is not located near any parks, recreational area, or wildlife refuges. This information was obtained from maps of the area and the NEPA Check™ report provided by EDR (Appendix D).

1.4.10 Environmental Liens

There are no known environmental liens on the Site, either past or current, as indicated in the Phase I ESA (Appendix A).

1.5 RECLAMATION

1.5.1 Description of Desired Results

Once mining activities have ceased, the Site will be restored to a condition that will comply with public and livestock safety considerations. Specifically, the side slopes will be regraded to 4H:1V slopes, and then hydroseeded with native plants to help reestablish a vegetative cover and reduce erosion. Mitigation of the impacts to the native plants on the Site will be accomplished through planting of native vegetation using like species and in amounts equal to or greater than the vegetation disturbed. Reclamation will be an on-going process throughout the 10-year lease of the Site. As mining is completed in an area, the area will be reclaimed. The reclamation will be conducted in accordance with the Reclamation and Closure Plan in Section III.

1.5.2 References to Mine Operating Plan and Reclamation Details

The findings and recommendations of this EA were considered during the development of the MOP and will be utilized to develop the reclamation details.

1.6 PERMITS AND APPROVAL

1.6.1 US Army Corps of Engineers Section 404 Permit

There are no washes or other types of waterways on the Site. Therefore, there are no areas that may be considered as jurisdictional "Waters of the United States" by the US Army Corps of Engineers under Section 404 of the Clean Water Act (CWA).

1.6.2 National Pollutant Discharge Elimination System Permit

A National Pollutant Discharge Elimination System (NPDES) Storm Water Multi-Sector General Permit (MSGP) will be obtained for the Site. Additionally, a Storm Water Pollution Prevention Plan (SWPPP) will be prepared for the project in accordance with the requirements set forth under Section 402(b) of the CWA. The SWPPP will comply with United States Environmental Protection Agency (USEPA) and the Arizona Department of Environmental Quality (ADEQ) requirements. The plan will identify industry-adopted measures for containment of potential pollutants to eliminate commingling with surface runoff or the groundwater table.

1.6.3 Air Quality Permit

A Maricopa County Air Quality Earth Moving Permit, Demolition, and Dust Control Plan will be obtained by MCDOT for the proposed mining operation.

1.6.4 Aquifer Protection Permit

No Aquifer Protection Permit (APP) will be required for the mining operations at the Site. This is due to the fact that there will be no surface water ponds at the Site nor any other type of potential discharging facilities.

1.6.5 Arizona Department of Environmental Quality 401 Permit

There are no drainages located on the Site; therefore, there will be no impact to any potential Waters of the State. A 401 permit will not be required for the mining operation.

1.6.6 Notice of Intent to Drill

There will be no drilling on the Site for the mining operations. If a well is necessary in the future, MCDOT will apply for a permit.

1.6.7 Septic Tank

MCDOT will provide portable toilet facilities at the Site during operation. There were no indications of past septic systems at the Site (Phase I ESA, Appendix A)

1.6.8 Flood Plain Use Permit

No floodplain use permits will be required because, as discussed in Section 1.4.1.1 (Surface Water and Drainage), mining operations at the Site will not encroach into regulatory floodplain or floodway areas.

1.6.9 Use Exemption

No use exemption permits are required for the mining operation at the Site.

1.7 UTILITIES

1.7.1 Water

Water will only be necessary at the Site for dust control purposes and drinking water for the workers. MCDOT will haul water by truck to the Site for both of these uses. There are no available water utilities on the Site. The nearest potential water source is a private well located on the adjacent property to the east.

1.7.2 Gas

No gas utilities will be needed during any phase of the proposed mining operation. There are no gas utilities available within the immediate area of the Site.

1.7.3 Electric

No electric utilities will be needed during any phase of the proposed mining operation. There are no electric utilities available within the immediate area of the Site.

1.7.4 Sewer

During the mining operation, portable restrooms will be placed on the Site. There are no sewer utilities available within the immediate area of the Site.

1.8 TRANSPORTATION

Transportation to and from the Site will be via US Highway 60 and an existing unpaved road. All of these access roads pass through undeveloped open land. US Highway 60 borders the south boundary of the Site. The on-Site, unpaved, unnamed road into the Site will be maintained by MCDOT during the mining operation.

1.9 PLANNING AND ZONING

1.9.1 Current Planning and Zoning

The area of the Site is a rural area within Maricopa County. There is an exemption from zoning within Maricopa County for sand and gravel mining operations.

1.9.2 Conformance

Since the mining operation is exempted from zoning requirements, MCDOT will not be required to apply for any rezoning.

1.10 SOCIO-ECONOMICS IMPACTS

1.10.1 Mine Operations Economics

Sand and gravel is mined locally, near the point of use because of its heavy weight, high transportation costs, and low unit value. MCDOT wishes to use material from this Site to shorten haul distances to nearby Sites to be more cost effective for highway maintenance and construction projects. Existing staff will be utilized by this MCDOT operation.

1.10.2 State Trust Revenue Projections

MCDOT estimates approximately 20,000 tons of material per year of operation may be removed. The State Land Department will charge MCDOT an annual fee of $0.50 per ton. An annual guaranteed fee of one-half the annual fee for 20,000 tons ($10,000) will be paid by MCDOT. This fee will accrue each year if unused.

1.10.3 County and Surrounding Community Impacts

This mining operation should have no impact upon the County and surrounding community.

1.10.4 Environmental Justice

Title VI of the Civil Rights Act of 1964 and related statutes assure that individuals are not excluded from participation in, denied the benefit of, or subjected to discrimination under any program or activity receiving federal financial assistance on the basis of race, color, national origin, age, sex, and disability. Executive Order 12898 on Environmental Justice directs programs, policies, and activities not have a disproportionately high and adverse human health and environmental effect on minority and low-income populations. The proposed project is a material source operation project on a former gravel pit location and will not result in new impacts on the surrounding area. Therefore, the project is not anticipated to have any disproportionately high and adverse effects on these populations. Benefits of this project for all personnel utilizing the new facility include streamlined operations through providing a local and more readily available material source for use on highway construction projects in western Maricopa County. The Site is also remotely located so that disruption of local urban traffic will not occur.

1.11 SUMMARY

The EA has revealed no evidence of recognized environmental conditions, as defined under American Society for Testing and Materials (ASTM) E 1527-97, in connection with the Site. Five primary issues, with regard to mining operations at the Site proposed by MCDOT, were found. Each issue was addressed and discussed as they apply to the proposed mining operation for the Site.

1.12 AGENCIES CONTACTED

Agencies contacted for this EA were:

- Arizona Department of Transportation
- Arizona State Land Department
- Maricopa County Environmental Services Department
- Arizona Department of Agriculture
- Arizona Game and Fish Department
- US Fish and Wildlife Service

2.0 MINE OPERATIONS PLAN

2.1 INTRODUCTION

2.1.1 Purpose and Scope

The purpose of this MOP is to present technical information relative to mining operations proposed by MCDOT. The proposed mining activities will include the extraction of sand and gravel from approximately 40 acres on State Trust Land. This MOP will present how mine-related issues will be handled at the operations level.

The environmental issues identified in the EA that will be resolved in the MOP are the following:

1. Removing trash and debris at the Site.

2. Relocating Site access around the current cattle operation.

3. Avoiding or salvaging mature native plants during mining.

4. Revegetating disturbed areas after completion of mining in a specific area.

2.1.2 Operations Summary

MCDOT proposes to operate an open-pit sand and gravel mine at this former ADOT mine Site. The present plan involves excavating and loading mined material for off Site transport only. MCDOT does not plan to do any processing of the excavated material at this Site. A flowchart of the proposed mining operation is presented in Appendix F.

2.2 DEPOSIT DESCRIPTION

Very limited data is available from previous sand and gravel operations at the Site. Observation of the current Site conditions and exposed pit walls indicated that the type of sand and gravel material MCDOT is in need of exists at the Site.

2.3 ORE/MATERIAL RESOURCES

Based on several scenarios involving the existing livestock corral area, the estimated mineable resource is between 1.2 million and 1.4 million tons (Appendix I). This preliminary resource estimate was determined assuming a minimum 20-feet setback from the property boundaries and final slopes of 4H:1V. The tonnages were converted from volume numbers using an assumed 1.5 ton per cubic yard tonnage factor. These estimates reflect that a portion of the area has been previously mined out. The previously mined resource has been extracted from the estimated resource tonnage to reflect the tonnage currently remaining. A final mining depth of 25 feet is assumed. It is important to understand that the resource estimate assumes that all of the mineable material will be of useable quality. There is no data to confirm or disprove the quality of this material and it should, therefore, be referred to as potential resource.

2.4 DEVELOPMENT/PRODUCTION SCHEDULES

The production schedules will depend upon the quality of material found at the Site and the particular MCDOT project needs in the vicinity as determined on an annual basis by MCDOT. It is anticipated that the Site will provide MCDOT with a long-term, intermittent sand and gravel source for the Wickenburg and Aguila areas.

2.5 OPERATIONS

2.5.1 Site Development

The Site will be cleared and grubbed immediately prior to mining in areas anticipated for excavation for the project being undertaken at that time. This will enable MCDOT to maintain a more vegetated area, which will aid in reducing dust from the area during windy periods and help reduce erosion caused by runoff due to precipitation. Initially, one ramp into the excavation pit will be developed for access, but it may be later determined that two ramps would be beneficial for the operation. Fences, cattle guards, and gates will be installed as appropriate to limit access to the excavation pit for any livestock that may be grazing in the area. Due to the nature of the planned operation, which will have no on-Site processing activities, very little Site development is anticipated for this operation. Appropriate signage for a mining operation will be installed prior to commencing operations.

2.5.2 Construction

No construction of permanent structures is planned during the life of this operation.

2.5.3 Mining

2.5.3.1 Mine Design

All materials will be excavated using open-pit mining methods. Excavation will maintain a minimum 20-feet setback from the property boundaries. The southern property setback will be somewhat larger due to the highway and existing fences. An additional gate access adjacent to US Highway 60 is planned along with fencing about 0.7 acre inside of the existing fence to keep livestock activities separated from the mining activities. In addition to the gate and fencing, approximately 430 feet of gravel road will provide access from the existing access road around the proposed fenced livestock area. Figure 2 is a general layout and shows the proposed gate, fence, and road locations.

2.5.3.1.1 Mining Design Parameters

Since no materials processing will be performed on Site, no facilities will be needed for the handling of waste fines or non-useable materials. It is anticipated that all mined material will be hauled away for off-Site use. The excavation pit is planned for intermittent use by MCDOT and will not be in use on a regular schedule. Final excavation pit slopes will be approximately 4H:1V with a minimum 20-feet setback from the property boundaries. Active mining faces will be steeper than the final excavation pit slopes, but will be stabilized by bulldozing the working faces to 3H:1V slopes prior to leaving the Site for an indefinite or extended period of time. It is anticipated that the mining depth will be approximately 25 feet.

2.5.3.2 Topsoil Removal and Stockpiling

From visible pit wall cuts left by previous excavation, it appears as though no topsoil removal or stockpiling will be necessary. No study of the topsoil has been performed to confirm or deny the quality of the upper layer of material.

2.5.3.3 Slope/Bench Preparation

Excavation pit slopes will be variable throughout the mining process. Final excavation pit slopes will be cut to a 4H:1V slope along the perimeter. Bench preparation is not anticipated to be required.

2.5.3.4 Drilling

MCDOT does not anticipate that drilling will be needed to facilitate the extraction of materials at the Site.

2.5.3.5 Blasting

MCDOT does not anticipate that blasting will be needed to facilitate the extraction of materials at the Site.

2.5.3.6 Loading/Hauling

Material will be broken (ripped) and pushed using a bulldozer. Front-end loaders will load the broken material into various types of highway haulage trucks for haulage either directly to the project Site or to an off-Site processing facility.

2.5.3.7 Mining Equipment

It is anticipated that front-end loaders, bulldozers, highway haul trucks, water trucks, graders, and fuel/lube trucks will be utilized for this operation.

2.5.4 Processing

2.5.4.1 Plant Operating Parameters

No processing facilities are planned for this operation.

2.5.4.2 Product Mix

The product leaving the Site will be unprocessed and will come directly from the advancing mining face.

2.5.4.3 Ore/Materials Handling

Front-end loaders and highway haul trucks will be used to handle materials at the Site.

2.5.4.4 Crushing Conveying

No crushing or conveying is planned for this operation.

2.5.4.5 Screening

No screening is planned for this operation.

2.5.4.6 Sorting/Classifying

No sorting or classifying is planned for this operation.

2.5.4.7 Production Monitoring and Verification

MCDOT will monitor production from the Site by tracking truckloads leaving the Site.

2.5.4.8 Product Handling, Stockpiling, Bagging, and Storage

The only product handling planned for this operation is bulldozer ripping of material by the mining face and the loading of material into highway haul trucks. No bagging or storage is planned for this operation. Temporary in-pit stockpiles may be utilized from time to time if deemed beneficial to operation logistics.

2.5.4.9 Product Hauling

All mined material will be loaded and hauled off Site for either direct use or to an off-Site facility for processing.

2.5.4.10 Processing Equipment and Buildings

No processing equipment or buildings are planned for this operation.

2.5.5 Labor Force

2.5.5.1 Company

MCDOT plans to utilize all its own personnel and equipment for this operation. MCDOT may hire a specialty subcontractor as deemed necessary.

2.5.5.2 Construction Contractors/Subcontractors

Subcontractors may be hired as deemed necessary, but are anticipated only to support MCDOT personnel and equipment at this operation.

2.5.5.3 Mining Contractors/Subcontractors

Subcontractors may be hired as deemed necessary, but are anticipated only to support MCDOT personnel and equipment at this operation.

2.5.6 Emissions and Pollution Controls

2.5.6.1 Particulates

MCDOT will meet standards set forth by Maricopa County Air Quality Control or ADEQ, whichever applies.

2.5.6.1.1 Drilling and Blasting

No drilling or blasting is planned for this operation.

2.5.6.1.2 Crushing, Screening, and Sorting

No crushing, screening, or sorting is planned for this operation.

2.5.6.1.3 Loading, Hauling, and Conveying

Dust from loading and hauling will be controlled through the use of water trucks. No conveying is planned for this operation.

2.5.6.1.4 Stockpiles

Only temporary in-pit stockpiles may be used in this operation.

2.5.6.2 Noise

2.5.6.2.1 Mining Equipment

The only planned mining equipment to be utilized at this operation are bulldozers, front-end loaders, and highway haul trucks. Loading trucks at the bottom of the excavation pit will minimize noise from equipment. The access road enters the Site directly off of US Highway 60 and a relatively undeveloped area.

2.5.6.2.2 Blasting

No blasting is planned for this operation.

2.5.6.2.3 Crushing, Screening, and Sorting

No crushing, screening, or sorting is planned for this operation.

2.5.6.2.4 Power Generation

No power generation is planned for the Site. The Site is planned for intermittent use during daylight hours. If the need arises for light for nighttime operation, portable, temporary self-powered lighting systems will be utilized.

2.5.6.3 Solid Waste Handling and Disposal

MCDOT will contract with a solid waste handling and disposal company if it is determined that solid waste will be generated at the Site.

2.5.6.4 Hazardous Waste/Water Pollutants/Spills

2.5.4.6.1 Surface

The only water that will be used on the Site will be for the purpose of dust suppression. MCDOT anticipates that water will be hauled to the Site in water trucks and applied by the same trucks. No water will be stored in tanks or ponds at the Site. There will be no hazardous material additives to the water used for dust suppression and no applied water will be allowed to leave the Site.

2.5.6.4.2 Ground

No use of, or recharge to, groundwater is planned for this operation.

2.5.6.5 Emergency Response

The emergency response plan and procedures are included as Appendix G.

2.5.6.6 Monitoring and Reporting

MCDOT will periodically perform self-monitoring checks on visual emissions such as dust.

2.5.7 Wildlife/Endangered Species Protection

The BA conducted on the Site indicated a potential for occurrence of the Sonoran Desert Tortoise (Appendix B). If a Sonoran Desert Tortoise is encountered during operations, it will be handled according to the guidelines provided by the Arizona Game and Fish Department, included in the BA. If MCDOT should encounter a Sonoran Desert Tortoise during the mining operation, the Arizona Game and Fish Department may be contacted for assistance.

2.5.8 Protected Plant Species Handling

No threatened or endangered plant species were identified. The Department of Agriculture has recommended that MCDOT minimize the removal or destruction of existing vegetation to the greatest extent possible. MCDOT will work with the Department of Agriculture and commercial nursery operations to implement this recommendation.

2.5.9 Visual Impact

Mining activities will, for the most part, take place below surrounding ground level inside the excavation pit. With activities occurring below surrounding ground level, and with the native desert vegetation providing some screening, the visual impact of this operation will be minimal. There are no residences or other structures in the immediate vicinity of this operation that would be visually impacted by the planned operations at the Site.

2.5.10 Cultural Resources

A cultural resources survey was completed for the Site. The findings of the report stated that no significant cultural resources were identified and no historic properties will be affected by the mining operations at the Site.

2.6 FACILITIES

2.6.1 Ancillary Equipment and Facilities

2.6.1.1 Access and Haul Roads

Access to the Site will be along US Highway 60. The southern boundary of the Site lies adjacent to US Highway 60. From the highway, a dirt access road passes through a gate in the fence to the livestock corral and planned excavation pit ramp area. Gravel will be applied to roadways to reduce dust at the Site. It is possible that cattle guards may be placed at the gate and at the top of the excavation pit access ramp. However, it is anticipated a second gate and gravel road will be installed adjacent to US Highway 60 to segregate equipment and livestock operations. Figure 2 is a general layout and shows the proposed gate, fence, and road locations.

2.6.1.2 Power Generation and Distribution

It is not anticipated that any power distribution or generation will be required for this operation.

2.6.1.3 Water Supply and Storage

No water will be stored at the Site. All water for dust suppression will be hauled to the Site from an off-Site source.

2.6.1.4 Explosives Storage

No explosives are planned to be used or stored for this operation.

2.6.1.5 Fuel Storage

No fuel is planned to be stored at the Site. All diesel fuel for on-Site equipment will be hauled to the Site by a fuel/lube truck.

2.6.1.6 Maintenance Areas

There will be no maintenance areas or facilities on-Site for this operation.

2.6.1.7 Mine Office

No mine office is planned for this operation.

2.6.1.8 Sanitary and Solid Waste Disposal

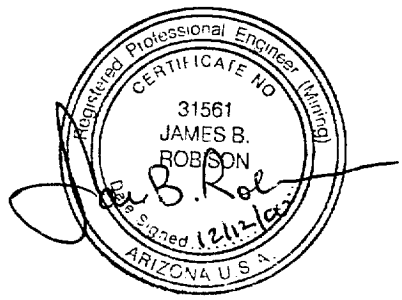
A portable toilet will be provided for on-Site personnel. Solid waste will be handled through an appropriate solid waste disposal contractor.

2.6.1.9 Site Security

Three-strand barbed wire fencing will be erected around the perimeter of the active excavation pit as well as in other appropriate areas to limit access to the active areas to livestock that may be using the livestock corral area on the south end of the Site.

2.6.1.10 Fire Protection

Fire extinguishers will be carried on each piece of equipment. A water truck will be on-Site during operations and can be used to extinguish any fires.



3.0 RECLAMATION AND CLOSURE PLAN

3.1 INTRODUCTION

3.1.1 Purpose and Scope

The purpose of this Reclamation and Closure Plan (RCP) is to present the details of planned reclamation for the Site after the proposed mining operation has ceased. This RCP has been developed with consideration for the EA and MOP. The RCP addresses environmental, technical, and operational issues that were identified in the EA and MOP.

The following issues will be mitigated by the RCP:

1. Areas where native vegetation has been removed by the mining operation will be reseeded.

2. The remaining pit will have stabilized slopes for increased safety and erosion control.

3.1.2 Reclamation Summary

Reclamation of disturbed areas will occur as those areas are mined out. Once a mining face has mined through an area which lies along a property boundary setback, the area will be reclaimed since it will not be disturbed any further. Final slopes will be regraded to a 4H:1V slope prior to revegetation activities which will help re-establish vegetation comparable to conditions prior to mining activities. Upon completion of mining activities, flat areas and mine roads will be scarified prior to revegetation activities.

3.2 RECLAMATION APPROACH

MCDOT will reclaim, regrade, and revegetate excavated areas. Reclamation will include the regrading of all final slopes to at least 4H:1V and revegetate slopes and excavation pit floor to a comparable level of vegetation that existed prior to disturbance by MCDOT mining operations.

3.3 EQUIPMENT AND STRUCTURAL REMOVAL

MCDOT does not have any current plans to have any structures on the Site. All equipment used for the mining operation (i.e., trucks, bulldozers, etc.) will be removed from the Site after the mining operation has ended. Equipment maintenance will not be conducted on Site. Therefore, remediation of impacted areas will be unnecessary.

3.4 WASTE DUMPS

MCDOT will not have any areas for waste storage at the Site. Any areas that might become impacted during the mining operation will be remediated, and any waste properly disposed in an off-Site facility.

3.5 ROADS, POWER LINES, WATERLINES, AND FENCES

Any roads that were constructed exclusively for MCDOT mining activities at the Site will be removed, scarified, and revegetated. Any three-strand barbed wire fencing and cattle guards that were placed to prevent livestock access during active operations will be removed if the removal is in accordance with the State's requirements.

3.6 AREA PREPARATION

Grading of the perimeter of the excavation pit final slopes to 4H:1V and scarification of compacted areas will occur prior to reseeding. No other preparation is planned. The existing surface material appears to be similar to the material at depth, based on what can be seen in pit wall cuts left by previous excavation operations at the Site. For this reason, it is not anticipated that any topsoil needs to be stockpiled or reapplied upon cessation of mining activities.

3.7 REVEGETATION/SEEDING

The pit, its side slopes, and any other disturbed areas on the Site, will be revegetated after the mining operation has ceased. The revegetation will be accomplished using hydroseeding, a method that offers a high success rate in plant establishment, or other broadcast methods, if necessary. This method also allows for the addition of mulch, fertilizer, and soil stabilizers, if necessary, to aid in the re-establishment of plant cover.

3.8 SLOPE STABILIZATION

Final slopes will be regraded to no steeper than 4H:1V and will be hydroseeded to promote rapid germination, which will aid in stabilizing the slope against soil erosion from runoff caused by precipitation.

3.9 EROSION AND DRAINAGE CONTROL

The Site is relatively flat with the exception of the planned excavation pit. The revegetation of the final excavation pit slopes will provide some erosion resistance. A hardening of a disturbed surface typically forms after the first few precipitative events, producing a crust. No major drainages exist at the Site and the planned mining operations will not change this situation. Therefore, it is not anticipated that any drainage construction or armoring will be required as a part of the reclamation work at the Site.

3.10 NON-OPERATING PERIODS

3.10.1 Mining Areas

Final slopes adjacent to property line setbacks will be reclaimed once that area has been completely mined. If the Site is not to be used for an extended period of time (several months, for example), the mining face will be sloped to 3H:1V so that no slopes on the Site will be left unattended at a steeper slope than 3H:1V. Gates will be locked and fences inspected to ensure that no access remains for livestock to enter the excavation pit area. A dust-control product called Dustac will be utilized in disturbed areas to limit wind and water erosion between operating periods.

3.10.2 Processing and Other Areas

No on-Site processing is planned for this operation. Roads and ramps will be left until cessation of mining operations; then they will be reclaimed.

3.10.3 Personnel

MCDOT Site personnel will be part of a roving crew that will move to various Sites as project material demands change.

3.11 MONITORING

The closure of operations at the Site will be monitored in accordance with State Trust Land guidelines. If required, guidelines will be developed when the Reclamation and Closure Report is prepared at the end of the lease period.

3.12 RECLAMATION COSTS

All reclamation costs will be wholly borne by MCDOT.

4.0 REFERENCES

Arizona Department of Transportation, Materials Group. December 2, 1931. File No. 2827.

Arizona Game and Fish Department. August 16 and September 21, 2000. Written Communication.

Brown, D.E. (Ed). 1994. Biotic Communities: Southwestern United States and Northwestern Mexico. University of Utah Press: Salt Lake City.

Environmental Data Resources, Incorporated. August 10, 2000. *The EDR NEPA Check*™ Report No. 0527141.7r.

Lamidas, Tony. August 25, 2000. Arizona Department of Agriculture, Native Plant Division, Phoenix Office. Plant Survey.

Maricopa County Environmental Services Department, Air Quality Control Division. September 21, 2000. Personal Communication.

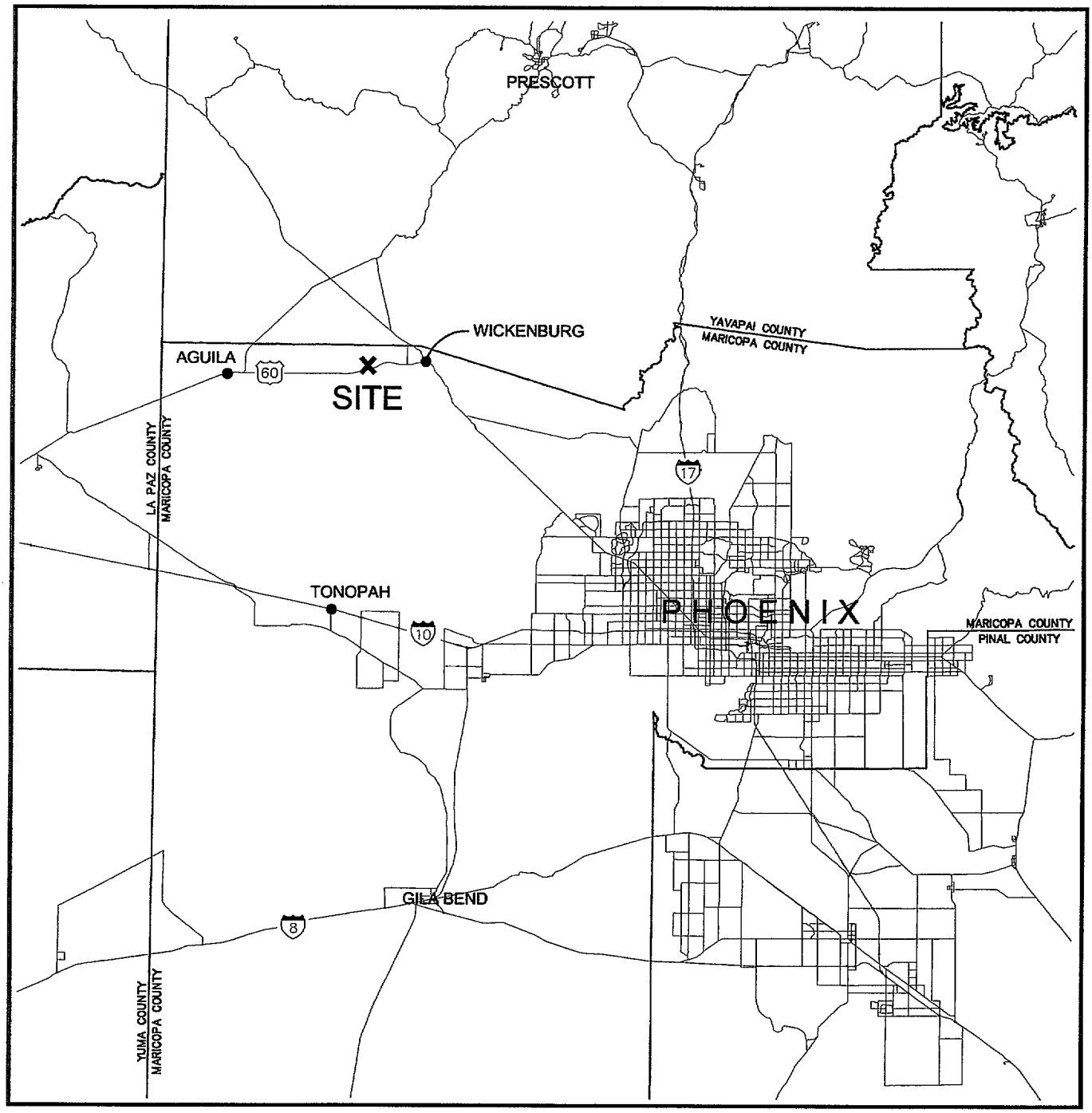
Remick, W. H. 1981. *Hydrologic Map Series Report Number 6, December 1981. Maps Showing Ground-Water Conditions in the McMullen Valley Area, Maricopa, Yavapai, and Yuma Counties, Arizona.*

Slusher, Gary. August 25, 2000. Arizona State Land Department. Personal Communication.

United States Department of Agriculture, Soil Conservation Service. April 1986. *Soil Survey of Aguila-Carefree Area, Parts of Maricopa and Pinal Counties, Arizona.* Sheet No. 4 of 51.

United States Fish and Wildlife Service. August 17, 2000. Endangered and Threatened Species List. Internet web Site.

United States Geological Service (USGS). 1990. *Outlaw Hill, Arizona, 7.5-Minute Topographic Map.*



0 10 20

APPROXIMATE SCALE IN MILES

Figure 1

SITE VICINITY MAP
FOREPAUGH MINERAL PIT
WEST OF WICKENBURG
MARICOPA COUNTY, ARIZONA

BROWN AND CALDWELL
Phoenix, Arizona

P:\Cad\ES\MARICOPA\9422\F9422004.dwg (1=1) 12-05-00 JCollier

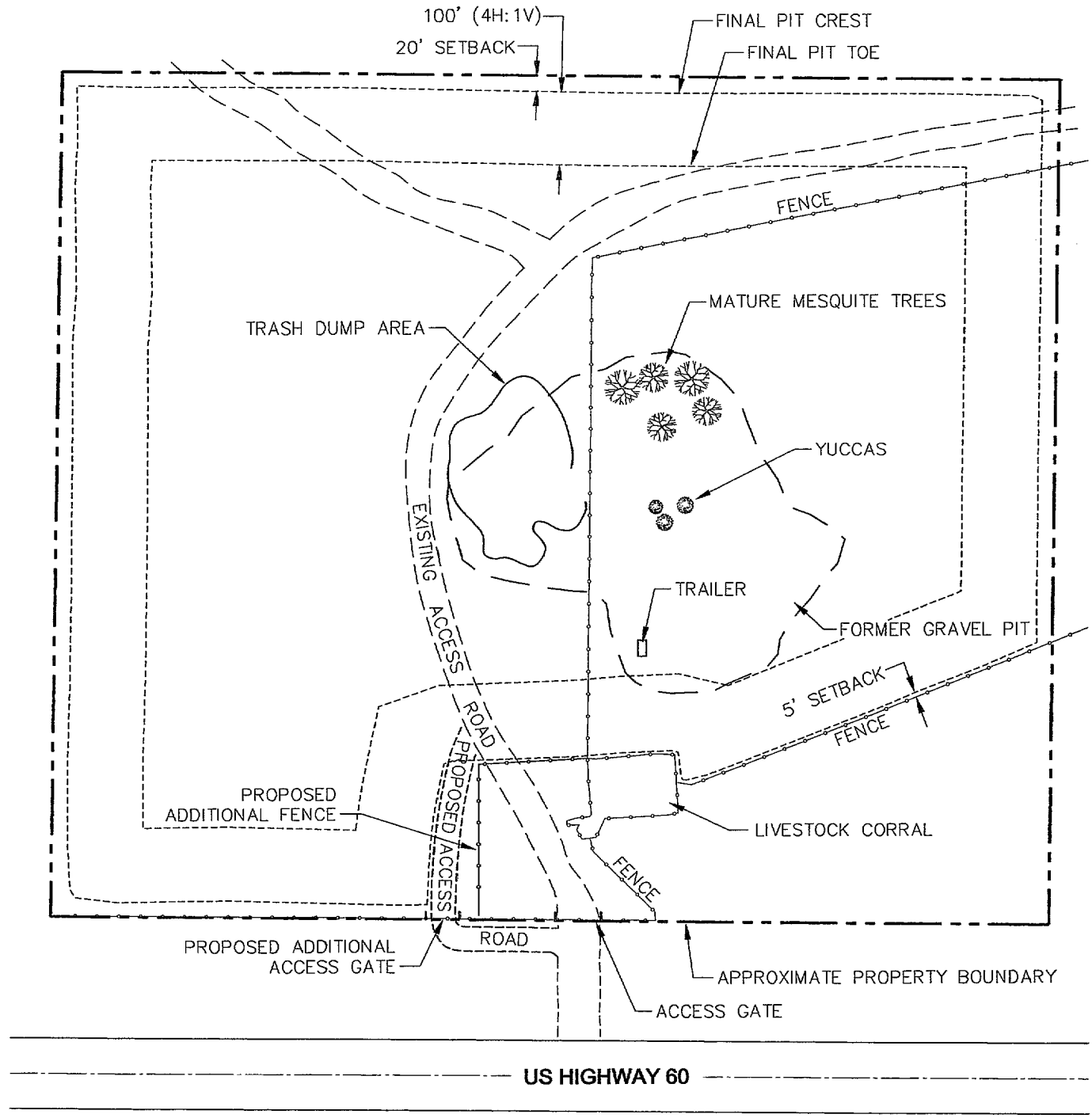
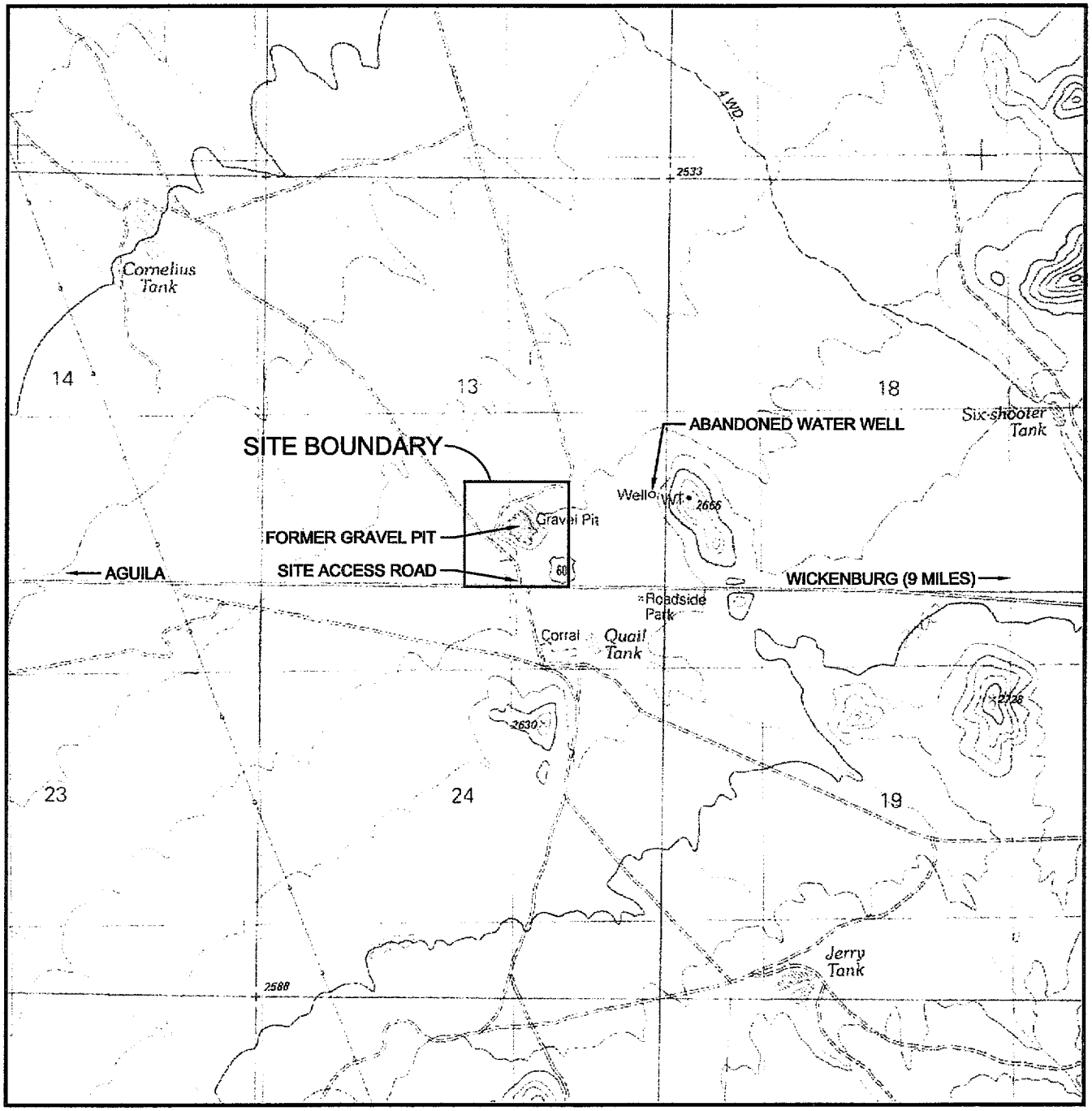


Figure 2

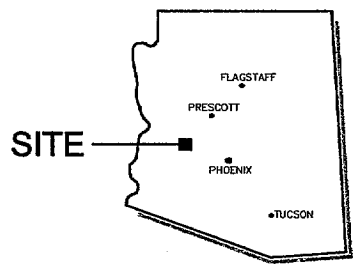
SITE DIAGRAM
FOREPAUGH MINERAL PIT
U.S. HIGHWAY 60, WEST OF WICKENBURG
MARICOPA COUNTY, ARIZONA

BROWN AND CALDWELL
Phoenix, Arizona

P:\Cad\ES\MARICOPA\9422\F9422005.dwg (1=1) 12-06-00 JCollier



SOURCE: USGS 7.5 MINUTE TOPOGRAPHIC QUADRANGLE MAP – OUTLAW HILL, ARIZONA



ARIZONA

0 1000 2000

APPROXIMATE SCALE IN FEET

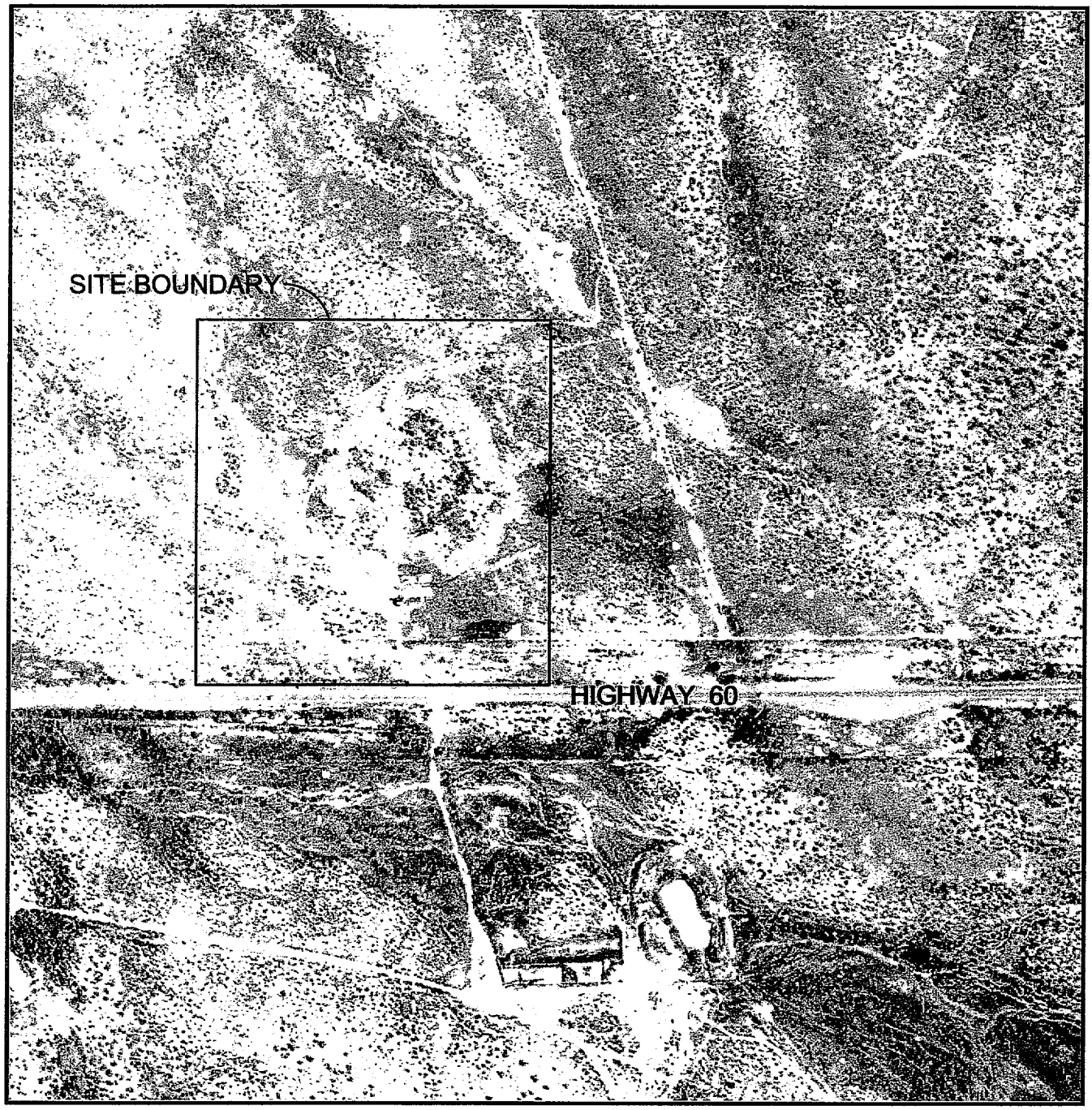
Figure 3

SITE TOPOGRAPHIC MAP FOREPAUGH MINERAL PIT

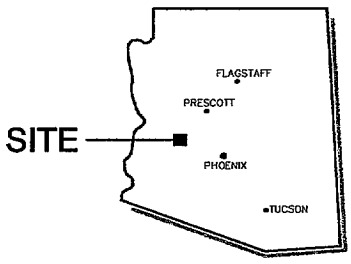
WEST OF WICKENBURG MARICOPA COUNTY, ARIZONA

BROWN AND CALDWELL
Phoenix, Arizona

P:\Cad\ES\MARICOPA\9422\F9422002.dwg (1=1) 12-05-00 JCollier



SOURCE: ARIZONA DEPARTMENT OF TRANSPORTATION
PHOTOGRAMMETRY AND MAPPING SERVICES.
AERIAL PHOTOGRAPH DATED MARCH 4, 1998.
1"=2000' No. 3548, 3-22



ARIZONA

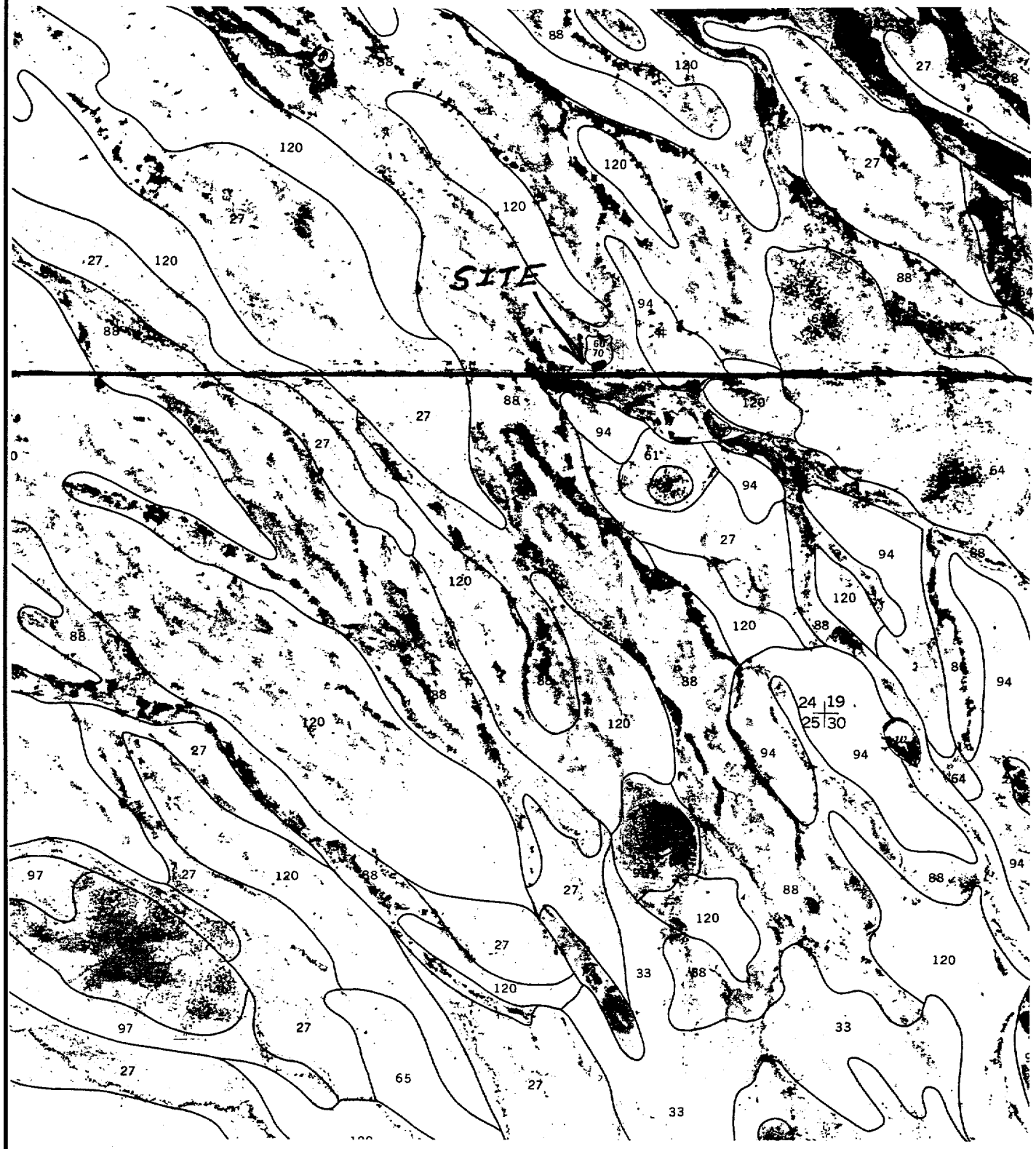
Figure 4

AERIAL PHOTOGRAPH FOREPAUGH MINERAL PIT

WEST OF WICKENBURG MARICOPA COUNTY, ARIZONA

BROWN AND CALDWELL
Phoenix, Arizona

P:\Cad\ES\MARICOPA\9422\F9422006.dwg (1=1) 11-02-00 JCollier



SOURCE: USDA, SOIL CONSERVATION SERVICE, SOIL SURVEY MAP, SHEET No. 4 OF 51, APRIL 1986

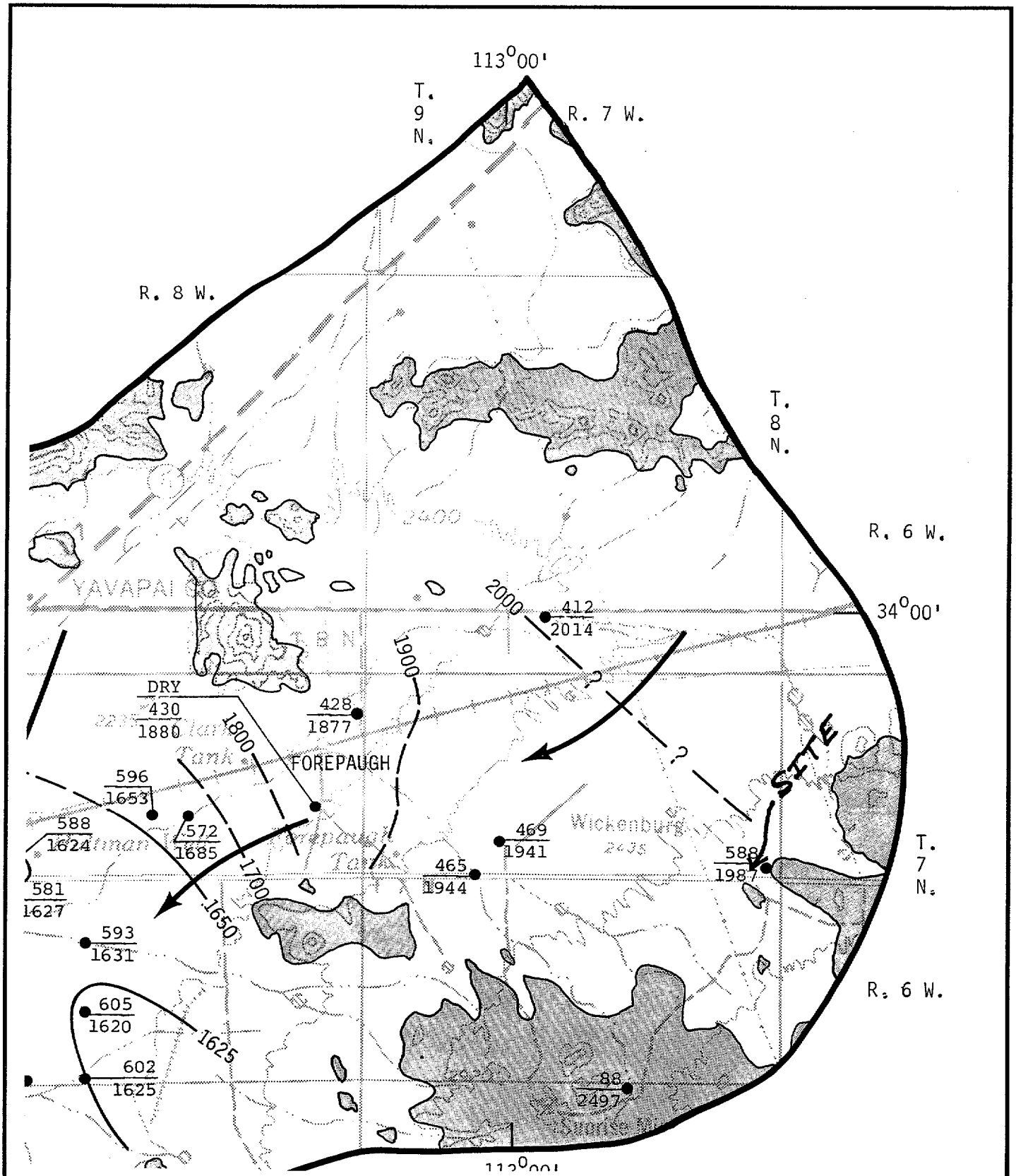
N

BROWN AND CALDWELL
Phoenix, Arizona

Figure 5

SOIL SURVEY MAP
FOREPAUGH MINERAL PIT
WEST OF WICKENBURG
MARICOPA COUNTY, ARIZONA

P:\Cad\ES\MARICOPA\9422\F9422008.dwg (1=1) 12-06-00 JCollier



SOURCE: HYDROLOGIC MAP SERIES REPORT, DECEMBER 1981 BY W.H. REMICK

N

BROWN AND CALDWELL
Phoenix, Arizona

Figure 6

GROUNDWATER FLOW MAP FOREPAUGH MINERAL PIT

WEST OF WICKENBURG MARICOPA COUNTY, ARIZONA

P:\Cad\ES\MARICOPA\9422\F9422009.dwg (1=1) 12-06-00 JCollier

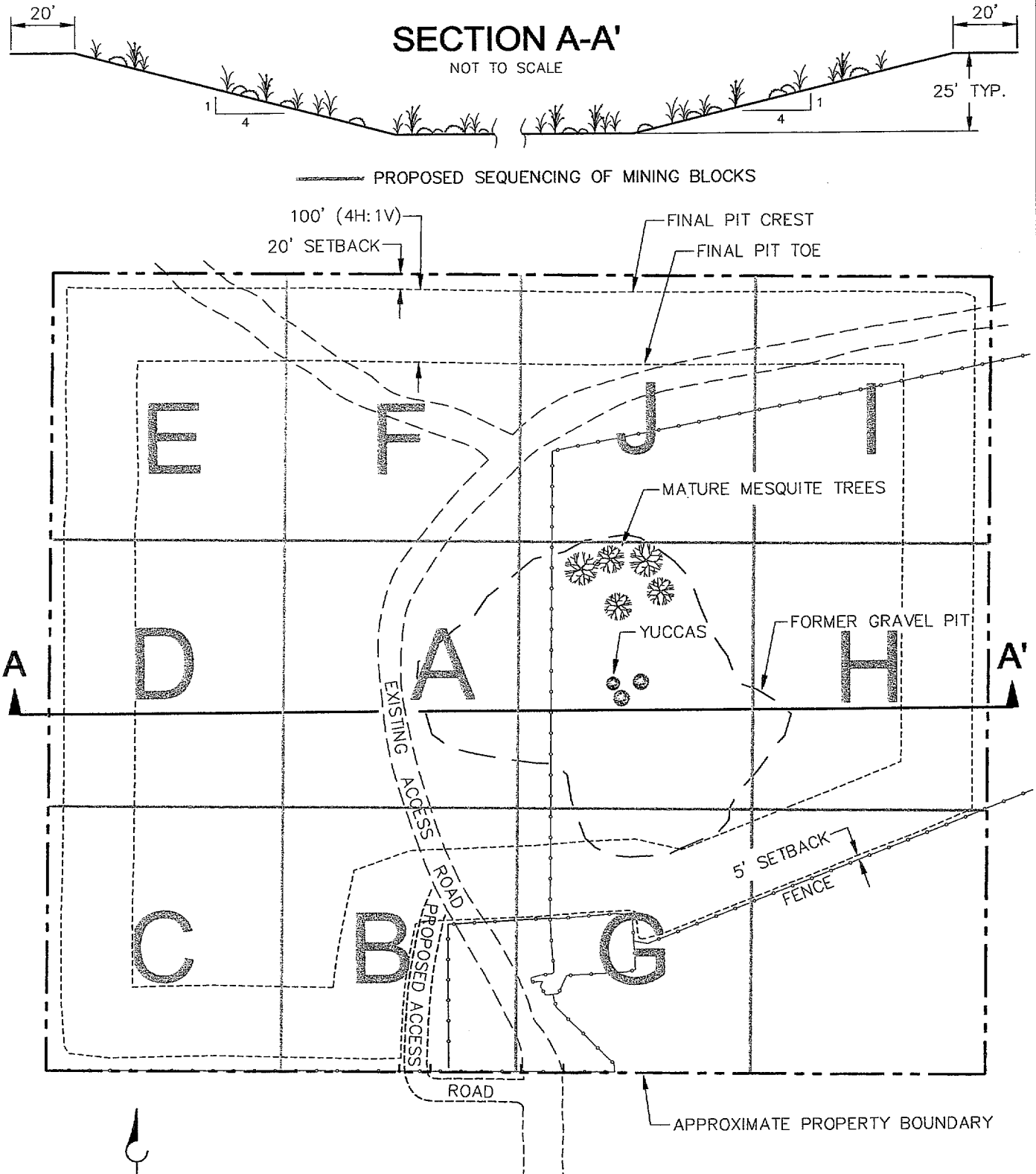


Figure 7

EXCAVATION PLAN AND FINAL PIT CROSS-SECTION A-A'

U.S. HIGHWAY 60, WEST OF WICKENBURG MARICOPA COUNTY, ARIZONA

BROWN AND CALDWELL
Phoenix, Arizona

P:\Cad\ES\MARICOPA\9422\F9422007.dwg (1=1) 12-06-00 JCollier

APPENDIX A

PHASE I ENVIRONMENTAL SITE ASSESSMENT

PHASE I
ENVIRONMENTAL SITE ASSESSMENT

FOREPAUGH MINERAL PIT
WEST U.S. HIGHWAY 60
MARICOPA COUNTY, ARIZONA

DECEMBER 6, 2000

Prepared for:

Maricopa County Department of Transportation
2901 West Durango Street
Phoenix, Arizona 85009

Prepared by:

Brown and Caldwell
3636 North Central Avenue, Suite 200
Phoenix, Arizona 85012
(602)-222-4444

Brown and Caldwell Project No. 19422

TABLE OF CONTENTS

TABLE OF CONTENTS – CONTINUED

LIST OF FIGURES

LIST OF TABLES

LIST OF APPENDICES

LIST OF ACRONYMS
SPECIFIC TO THE ASTM STANDARD

ASTM	American Society for Testing and Materials.
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act of 1980 (as amended, 42 USC § 9601 *et seq.*).
CERCLIS	Comprehensive Environmental Response, Compensation and Liability Information System (maintained by EPA).
CFR	Code of Federal Regulations.
EPA	United States Environmental Protection Agency.
EPCRA	Emergency Planning and Community Right-to-Know Act (also known as SARA Title III: 42 USC § 11001 *et seq.*).
ERNS	Emergency Response Notification System.
ESA	Environmental Site Assessment (different from an *environmental audit*).
FOIA	U.S. Freedom of Information Act (§5 USC 552 *et seq.).*
FR	Federal Register.
LUST	Leaking Underground Storage Tank.
MSDS	Material Safety Data Sheet.
NCP	National Contingency Plan.
NPDES	National Pollution Discharge Elimination System.
NPL	National Priorities List.
PCBs	Polychlorinated Biphenyls.
PRP	Potentially Responsible Party (pursuant to CERCLA 42 USC § 9607(a)).
RCRA	Resource Conservation and Recovery Act (as amended, 42 USC § 6901 *et. seq.*).

SARA	Superfund Amendments and Reauthorization Act of 1986 (amendment to CERCLA).
USC	United States Code.
USGS	United States Geological Survey.
UST	Underground Storage Tank.

1.0 INTRODUCTION

1.1 PURPOSE

Maricopa County Department of Transportation (MCDOT) has retained Brown and Caldwell to perform a Phase I Environmental Site Assessment (ESA) for the property located in the Southwest Quarter of the Southeast Quarter of Section 13, Township 7 North, Range 7 West, of the Salt River Baseline and Meridian in Maricopa County, Arizona (the Site). The Site consists of 40 acres of native desert land with a livestock corral and a former sand and gravel pit. This Phase I ESA is intended to serve as an appropriate, commercially prudent, and reasonable inquiry regarding the potential for *recognized environmental conditions* in connection with the Site.

1.2 SCOPE OF SERVICES

To satisfy the requirements of the standards presented in American Society for Testing and Materials (ASTM) Practice E1527-97, Brown and Caldwell performed the following tasks as part of this Phase I ESA. At the client's request, the scope of services included the following considerations to provide MCDOT with a baseline evaluation of the environmental conditions at this time:

Task 1 - *Records Review* – Brown and Caldwell obtained and reviewed records that identified *recognized environmental conditions* in connection with the Site. The minimum search distance (msd) followed ASTM recommendations for standard and additional environmental record sources.

Task 2 - *Site Reconnaissance* – Through Site visits, Brown and Caldwell obtained information indicating the likelihood of identifying *recognized environmental conditions* in connection with the Site. Brown and Caldwell inspected neighboring properties and the neighborhood, to the degree possible without trespass, to visually inspect for land uses on adjoining or neighboring properties that may have a potential for *recognized environmental conditions* to adversely affect the property. The Phase I ESA also evaluated the potential for impact by off-Site sources, such as leaking underground storage tank (LUST) incidents, and the significance of identified upgradient groundwater contamination sources.

Task 3 - *Interviews* – Brown and Caldwell obtained information regarding *recognized environmental conditions* through interviews with individuals familiar with the property.

Task 4 - *Evaluation and Report Preparation* – Brown and Caldwell prepared this report detailing the findings associated with each of the above-listed tasks.

The scope of Brown and Caldwell's services for this project is included as Appendix A.

1.3 LIMITING CONDITIONS

This report has been prepared for the exclusive use of MCDOT and their assigns, in accordance with the standards of the environmental consulting industry at the time the services were performed. This report was also prepared in general accordance with the Maricopa County Environmental Consulting Services contract agreement (No. B598017RFP) between Maricopa County and Brown and Caldwell dated October 21, 1998. The project was authorized by MCDOT in the purchase order agreement (No. 40030178) to Brown and Caldwell dated July 19, 2000. This work has been performed for the sole purpose of assisting in the evaluation of environmental conditions associated with the Site. This report is governed by the specific scope of work authorized by MCDOT and is not intended to be relied upon by any other party. The findings presented herein are based upon observations of Site conditions as of the date the assessment was performed and a review of *reasonably ascertainable* standard records sources. The findings and conclusions presented herein should not be assumed to apply to conditions or operating practices on this property occurring subsequent to Brown and Caldwell's actual on-Site investigation.

The findings of the Phase I ESA, as represented within this report, must be viewed in recognition of certain limiting conditions. The scope of work commissioned for this project does not represent an exhaustive study, but rather a reasonable inquiry, consistent with good commercial practice, in general accordance with ASTM Practice E1527-97. In the course of this assessment, Brown and Caldwell has relied on information provided by outside parties, such as regulatory agencies and interview sources. Brown and Caldwell has made no independent investigation as to the validity, completeness, or accuracy of such information provided by third-party sources. For the purposes of this assessment, such third-party information is assumed to be accurate unless contradictory evidence is noted, and Brown and Caldwell does not express or imply any warranty regarding information provided by third-party sources. This report makes no representation that environmental contamination does not exist at this Site beyond that described in this report.

Throughout this report, italicized terms refer to specific definitions set forth in Section 3.2 of the ASTM Standard.

The purpose of this ESA is to identify, to the extent feasible, pursuant to the scope and limitation of the guidelines set forth in the ASTM Practice E1527-97, *recognized environmental conditions* in connection with the property. The term *recognized environmental conditions* is defined by ASTM (1997) as:

> The presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substance or petroleum products into structures on the property or into the ground, groundwater, or surface water of the property. The term includes hazardous substances or petroleum products even under conditions in compliance with laws. The term is not intended to include **de minimis** conditions that generally do not present a material risk of harm to public health or to the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies.

The term *reasonably ascertainable* is defined by ASTM (1997) as information that is publicly available to anyone upon request, obtainable from its source within reasonable time and cost constraints, and provided by the source in a practically reviewable manner sorted by geographical area.

1.4 EXCEPTIONS OR DEVIATIONS FROM THE ASTM PRACTICE

The following variances from standard are noted for this project:

- Due to the remote location of the Site, historical sources dating back to 1940, such as city directories, fire insurance maps, and historical aerial photographs were not available for review.

1.5 METHODOLOGY

The Site was inspected by transecting the Site by foot or vehicular travel at such intervals that the entire Site could be viewed.

2.0 SITE OVERVIEW

The Site is presently not occupied and is referred to by MCDOT as the Forepaugh Mineral Pit due to its proximity to Forepaugh Hill. The Site is located along the north side of U.S. Highway 60, approximately 9 miles West of Wickenburg in Maricopa County, Arizona.

The Site is situated within a primarily undeveloped native desert area. Adjoining properties on all four boundaries are also undeveloped native desert land. For the purpose of this ESA, the term adjoining property, as defined by the ASTM standard, refers to properties that border, or are contiguous or partially contiguous to the Site, or properties that would be if a street, road, or other public thoroughfare did not separate them.

The general topography of the Site is level; however, regionally the area gently slopes downward to the northwest. The elevation at the Site is approximately 2,560 feet above mean sea level (amsl). Geographic coordinates are approximately longitude 112 degrees, 56 minutes, 10 seconds and latitude 33 degrees, 56 minutes, 40 seconds. Please refer to Figure 1, Site Vicinity Map.

The legal description for the Site was provided by MCDOT, and is as follows:

> Southwest Quarter of the Southeast Quarter of Section 13, Township 7 North, Range 7 West of the Salt River Baseline and Meridian, Maricopa County, Arizona.

3.0 RECORDS REVIEW

Regional Geology – The Site is located within the McMullen Valley. It is bordered on the north by the Harcuvar Mountains and on the south by the Harquahala Mountains, which includes the highest point in this part of Arizona. The valley is drained by Centennial Wash, and ephemeral stream that flows about 20 miles east of Aguila, and discharges from the basin into the Harquahala Plains. The process of stream transportation and sorting of rock material from the mountains and the deposition of this material on the adjacent land surfaces is common in the arid and semiarid region of central and southwestern Arizona. The water-bearing deposits, conglomerate, alluvial-fan deposits, lakebed deposits, and alluvium, in McMullen Valley own their deposition to this process.

Information derived by Arizona Department of Water Resources (ADWR) of drill cuttings from wells in the Aguila area indicates that conglomerate is present at a depth of about 850 to 1,600 feet, and is more cemented than the overlying sediments.

The alluvial-fan deposits are composed of clay, silt, sand, and gravel and underlie most of the valley floor. In the Aguila area they overlie the conglomerate and, based on well logs from the area reported to ADWR, they are approximately 800 feet thick in some areas.

The upper part of the valley-fill deposits in McMullen Valley consists of alluvium deposited by Centennial Wash and its tributaries. The alluvium is composed largely of unconsolidated silt, sand, and gravel and, in the central and lower part of the valley, it overlies lakebed deposits; elsewhere it overlies alluvial-fan deposits.

Regional Groundwater Conditions – The alluvial-fan deposits constitute the principal water-bearing unit in McMullen Valley. The depth to groundwater in the Site vicinity is approximately 588 feet below ground surface (bgs), based on a 1981 groundwater data map provided by the ADWR. According to the ADWR 1981 map information, groundwater flow in the vicinity of the Site appears to flow toward the west to southwest.

It should be noted that regional hydrogeologic data may not predict Site-specific conditions, such as isolated perched-water systems or local variations in groundwater flow due to recent precipitation or high-volume pumping in the area.

Surface Topography and Manmade Features – Brown and Caldwell reviewed available United States Geological Survey (USGS) topographic quadrangle maps for the Site and vicinity to determine the physical setting of the Site. The 1990 7.5-minute USGS topographic quadrangle map of Outlaw Hill, Arizona (Figure 3), and the 1961 15-minute USGS topographic quadrangle map of Vulture, Arizona, indicate the Site is located on somewhat flat terrain. The general direction of surface slope appears to be downward toward the northwest and Aguila Valley, which is located approximately 2 miles northwest of the Site. Surface elevation for the Site is approximately 2,560 feet amsl.

The 1961 and 1990 topographic maps indicated the Site did not appear to have any manmade features or natural features of interest except for the former material pit.

Soil Conditions – According to the United States Department of Agriculture (USDA), Soil Conservation Service, "Soil Survey of Aguila-Carefree Area, Parts of Maricopa and Pinal Counties, Arizona," the Site is located on the soils of the Mohave-Continental-Guest. These soils are generally nearly level and gently sloping, clayey and loamy soils located on fan terraces and flood plains. The soil complex listed for the area of the Site are Nickel-Cave, which are 50 percent gravelly sandy loam and 35 percent Cave gravelly loam. These soils have a moderate permeability, available water capacity is low, runoff is medium, and the hazard of water erosion is slight. These soils may have a high lime content.

Floodplain and Zoning Information – Environmental Data Resources, Inc. (EDR) provided the Federal Emergency Management Agency Flood Insurance Rate Map information. According to Community Panel Number 04013C0225D / CWNP, obtained by EDR in 1999, the Site is located in the 500-year flood zone, which is a flood hazard area.

According to information provided by the Arizona State Land Department (ASLD), the Site is zoned as general rural. However, according to ASLD, sand and gravel operations are exempted from zoning requirements in Maricopa County, therefore, re-zoning for the Site will be unnecessary.

3.1 HISTORICAL USE INFORMATION

Brown and Caldwell reviewed *reasonably ascertainable* standard historical sources in an attempt to develop a history of the previous uses or occupancies of the Site and surrounding area. The objective was to identify those uses or occupancies that were likely to have led to *recognized environmental conditions* in connection with the Site. Brown and Caldwell attempted to identify uses or occupancies of the Site dating from the present back to when the property was first developed, or dating to at least 1940. These sources and findings are summarized in the sections that follow.

Historical Aerial Photographs – Brown and Caldwell attempted to review *reasonably ascertainable* aerial photographs depicting development of the Site and vicinity at a minimum of 5-year intervals. However, only one photograph depicting the Site was available (Appendix E). Due to the poor quality of the photograph and the high altitude scale, details of the Site were not clearly visible.

AERIAL PHOTOGRAPH SUMMARY

DATE	SOURCE OF AERIAL	PHOTO ID NO. (if available)	DESCRIPTION
3-4-98	ADOT	3548, 3-22	The Site is undeveloped desert land. The former material pit is visible with mature mesquite trees visible in the pit. The livestock corral is visible to the south of the pit. Highway 60 is shown south of the Site and an unpaved road is present which crosses the Site in the middle and splits to the northeast and northwest. There is another corral and livestock tank (pond) located south of the Site across Highway 60. There is a fence in the eastern portion of the Site that crosses the Site slightly diagonally. An abandoned trailer is also present in the photograph. Due to the high altitude of the photograph, further details are not clear enough to see any other trash or debris on the Site.

No environmental concerns were noted in the aerial photograph research.

City Directories – Historical city directories were not available for review due to the remote location of the Site from any urban areas. Listings are reviewed to identify facilities located on the Site or adjoining the Site that suggested the use, generation, storage, treatment, or disposal of potentially hazardous materials or petroleum products.

Sanborn Fire Insurance Maps – The Sanborn Fire Insurance Map series illustrates detailed historical development in some older areas of some metropolitan areas in Arizona.

EDR-Sanborn maps are typically published for central business districts. The Site is not located in an area typically referenced by the EDR-Sanborn maps. Consequently, EDR-Sanborn Maps were not requested for this ESA.

Historical Interviews – Interviews with persons with historical knowledge of the Site were conducted to acquire information regarding the historical use and environmental conditions of the Site.

Mr. Gary Slusher with ASLD was interviewed regarding the Site and vicinity. ASLD currently owns the Site. According to Mr. Slusher, the Site was formerly used as a mineral source pit by the Arizona Department of Transportation (ADOT) and has also been included in a larger lease for cattle grazing. Mr. Slusher has been with the ASLD for approximately 13 years and is unaware of any other past operations at the Site.

Mr. Ken Bouas, Right-of-Way Agent for ADOT, was contacted concerning ADOT's former use of the Site as a material source pit. Mr. Bouas identified a file (No. 2827, dated December 2, 1931) for the Site that indicated ADOT had initially tested the Site as a potential material source in 1931. Mr. Bouas did not know when ADOT started or stopped mining operations at the Site. The file had very limited information, basically concerning the soil material testing conducted at the Site in 1931 and 1932 by ADOT. Copies of the ADOT file information have been included in Appendix G. No other information was available concerning the Site from ADOT.

Additional Historical Sources – Historical USGS Topographic Quadrangles. Brown and Caldwell reviewed the 1961 15-minute USGS topographic quadrangle map of Vulture, Arizona, which includes the area of the Site. Based upon our review of the topographic map, there were no indications of any manmade features or natural features of interest at the Site except for the former material pit. An unpaved access road crossing the Site and U.S. Highway 60 are shown on the map.

Brown and Caldwell also reviewed the 7.5-minute USGS Topographic Quadrangle map of Outlaw Hill, Arizona, dated 1990. There were no indications of any manmade features or natural features of interest except for the former material pit and the access road.

3.2 STANDARD ENVIRONMENTAL REGULATORY RECORD SOURCES

The purpose of the records review is to obtain and review *reasonably ascertainable* records that will help identify *recognized environmental conditions* in connection with the Site. For this review, records were obtained from EDR. As noted under ASTM Section 7.4.1.2, information requested and not received within 20 days after the report date will not be incorporated into this report. The approximate msd for the Site vicinity review is noted under each database listed below. The ASTM standard mean sea level (msl) was extended to a 2-mile radius due to the large size of the Site. Regulatory data for facilities with *recognized environmental conditions* are listed in the EDR report in Appendix B.

TABLE 3-1. ENVIRONMENTAL DATABASE DESCRIPTIONS AND SEARCH DISTANCES

DATABASE	MINIMUM SEARCH DISTANCE (miles)	DESCRIPTION
National Priorities List (NPL)	2.0	United States Environmental Protection Agency (USEPA) listing of uncontrolled or abandoned hazardous waste sites. These sites are listed as facilities qualifying for possible long-term remedial action under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA).
Corrective Action Report (CORRACTS)-TSD	2.0	USEPA list identifying waste handlers with Resource Conservation and Recovery Act (RCRA) corrective action activity.
Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS)	2.0	USEPA listing of known or suspected uncontrolled hazardous waste sites. These sites have been investigated or are currently under investigation NPL candidate sites.
Resource Conservation and Recovery Information System (RCRIS)	SG[a] SS&A* LG[b] SS&A* TSD[c] 0.50	USEPA listing of facilities regulated under the RCRA as hazardous waste generators or treatment, storage, and disposal facilities.
Emergency Response Notification System (ERNS)	0.5	USEPA listing of reported sudden and/or accidental releases of hazardous substances, including petroleum, into the environment.
Water Quality Assurance Revolving Fund (WQARF)	2.0	Arizona Department of Environmental Quality (ADEQ) listing of state Superfund-equivalent sites.
Arizona Hazardous Waste Sites (SHWS) List	1.0	ADEQ listing of WQARF candidate sites.
Underground Storage Tank (UST) Program	0.5	ADEQ listing of all registered USTs in Arizona.
Leaking Underground Storage Tank (LUST) Program	2.0	ADEQ listing of all reported leaking UST (LUST) incidents in Arizona.
Arizona Solid Waste Facility (SWF) List	2.0	ADEQ listing of all opened and closed solid waste disposal facilities in Arizona.
Drywell Registration (DRL) List	0.5	ADEQ listing of registered drywells.
Facility Index System (FINDS)	0.5	USEPA database that contains facility information and information on other USEPA and state database information.
Toxic Substances Control Act (TSCA) Regulated Facilities	0.5	USEPA database of manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list.
Arizona Spills (Spills)	0.5	ADEQ log of chemical spills and incidents which are referred to the Emergency Response Unit.

Notes: [a]SG – small quantity generators
[b]LG – large quantity generators
[c]TSD – treatment, storage, disposal facilities
[d]TP– target property (Site)
*SS&A-Site and adjacent facilities

The Site was not identified on the databases reviewed by EDR.

Federal National Priority List (NPL) Facility List – The NPL Facility List was reviewed to identify United States Environmental Protection Agency (USEPA) Superfund facilities within a 1-mile radius of the Site. No NPL facilities were identified within the msd radius of the Site.

Federal Corrective Action Report (CORRACTS) – The CORRACTS listing was reviewed to identify waste handlers with Resource Conservation and Recovery Act (RCRA) corrective action activity within the msd radius of the Site. No CORRACTS facilities were identified within the msd radius of the Site.

State Superfund/Hazardous Waste Listings (SPL) – No State Superfund/Hazardous Waste facilities were identified within the msd radius of the Site.

State Solid Waste Disposal Facility Listings (SWLF) – No State Solid Waste Disposal facilities were identified within the msd radius of the Site.

Federal Emergency Response Notification System (ERNS) List – A review of the ERNS database was conducted to identify reported releases of oil and of hazardous substances on or adjacent to the Site. The database contains information from spill reports made to federal agencies, including the USEPA, the U.S. Coast Guard, the National Response Center, and the U.S. Department of Transportation (DOT). A search of the databases identified no reported releases on or adjacent to the Site.

Federal RCRA List – Facilities listed in the RCRA database are designated as hazardous waste treatment, storage, and disposal (TSD) facilities, hazardous waste generators, or hazardous waste transporters. No RCRA TSD facilities or RCRA Violator/RCRA Administrative Action Tracking System (RAATS) facilities were identified within the msd radius of the Site. No adjoining RCRA generators or transporters were identified during this review.

A generator code of LG-1 (large-quantity generator) indicates a facility that generates 1,000 kilograms per month (kg/month) or greater of non-acutely hazardous waste or 1 kg/month of acutely hazardous waste. A generator code of SG-2 (small-quantity generator) indicates a facility that generates less than 1,000 kg/month, but more than 100 kg/month of non-acutely hazardous waste, and a generator code of SG-3 (conditionally exempt small-quantity generator) indicates a facility that generates less than 100 kg/month of non-acutely hazardous waste. A RCRA facility that stores hazardous waste is indicated by a code of AS-2 and a transporter of waste by AT-2.

Leaking Underground Storage Tanks (LUSTs) – Review of the ADEQ list of LUSTs indicated no reported LUST incidents have occurred within the msd radius of the Site.

Underground Storage Tanks (USTs) – A review of the ADEQ list of USTs indicated no registered UST facilities within the msd radius of the Site.

3.3 ADDITONAL RECORD SOURCES

Registered Drywells – Arizona rules require owners to register all drywells on their property with ADEQ. The Water Permits Unit of ADEQ maintains a list of all drywells that have been registered to date with the state. According to ADEQ records, there are no registered drywells at the Site.

No adjacent facilities were found to have drywells registered with the ADEQ.

Illicit Dumping Sites – Brown and Caldwell contacted Mr. Rob Collins of the Maricopa County Illegal Dumping Department to obtain information regarding any records of illicit dumping on the Site. A response from Mr. Collins had not been received by the time of this draft report. However, visual observations of the site by Brown and Caldwell indicate that illicit dumping has occurred at the Site. Refer to photographs 1 through 3 in Appendix D.

City Fire Department – Brown and Caldwell was unable to contact a city fire department regarding the Site since the Site is not located within the jurisdiction of any municipal entity. Therefore, a municipal file search regarding USTs, hazardous spills/dumping responses, or any other environmental response actions was not requested. This information was requested from Maricopa County and ASLD.

Arizona State Land Department – According to Mr. Slusher with ASLD, there are no lease records for the Site. However, the Site is included within a much larger grazing lease held by Mr. Robert F. Echeverria, Lease No. 05-377. The length of this lease is unknown and was not provided by ASLD.

Septic Systems – Brown and Caldwell did not contact the Maricopa County Engineering Services Department to obtain information regarding any registered septic systems on the Site since the Site has never been developed according to historical information about the Site.

ADEQ/SRP Groundwater Quality Database – There were no wells listed by ADWR within a 1-mile radius of the Site with groundwater quality information available for review.

Arizona Department of Water Resources (ADWR) – According to ADWR, there were no registered water supply wells located on the Site or adjacent properties. There were two registered exploration wells located within a ½-mile radius. The EDR report also provided the same information, which is summarized below.

LOCATION	OWNER	REGISTRATION NUMBER	DEPTH (feet)	DIAMETER (inches)	WELL USE	DRILL DATE	PROXIMITY TO SUBJECT PROPERTY
07-07-13	Saga Exploration Company	520430	70	NL	Exploratory	5/12/88	Within ½ mile
07-06-18	Saga Exploration Company	520428	250	NL	Exploratory	5/12/88	Within 1 mile

Notes: M = Monitor
N = Test
E = Municipal
F = Industrial
NL = Not listed

United States Geological Service Basic Well Data (USGS) – In November 1971, the USGS implemented a national resource information tracking system. This national database contains some information that may not be included in state databases. EDR searches this national database for well information to supplement state well information.

According to the EDR report, there were no water supply wells located on the subject property. There was one water supply well located on the adjacent property to the east.

LOCATION	OWNER	REGISTRATION NUMBER	DEPTH TO WATER (feet)	DIAMETER (inches)	WELL USE	DRILL DATE	PROXIMITY TO SUBJECT PROPERTY
07-07-13	NL	NL	591.80	NL	Withdrawal of water	1/17/78	Adjacent

Notes: M = Monitor
N = Test
E = Municipal
F = Industrial
NL = Not listed

Hazardous Materials Information Reporting System (HMIRS) – This is the DOT listing of hazardous material spill incidents reported to DOT. A review of the HMIRS database was conducted to identify reported hazardous materials spills on the Site and within a ½-mile radius. A search of the databases identified no reported releases on the Site or within ½ mile of the Site.

4.0 SITE RECONNAISSANCE

The objective of the Site reconnaissance was to identify potential ASTM *recognized environmental conditions* in connection with the Site. This can be limited by weather conditions, bodies of water, adjacent buildings, or other obstacles. Any limitations were noted in Section 1.4 above.

The Site and adjoining properties were visually observed on August 25, 2000, by Brown and Caldwell Environmental Professionals, Ms. Janice Petticrew and Ms. Marnie Rand. The professionals were accompanied by Mr. Slusher, with ASLD, and Ms. Hedy Plowman, with MCDOT. Ms. Plowman is the Right-of-Way Agent for MCDOT, representing the client, and Mr. Slusher is responsible for processing MCDOT's application to lease the Site as a material source. The purpose of the Site reconnaissance was to note evidence of potential *recognized environmental conditions*. Additionally, observations of adjoining properties were performed to identify uses and associated potential *recognized environmental conditions*. Site photographs are included in Appendix D and the Site Plan is included as Figure 2.

4.1 SITE OBSERVATIONS

The Site consists generally of flat terrain, with low hills on the adjacent property to the east. U.S. Highway 60 borders the Site along the south and is a two-lane paved highway. Centrally located on the Site is a depression that represents the former gravel pit, which is approximately 11 acres in size and 15 feet deep. The interior of the pit is overgrown with mature growth desert trees and shrubs, mainly mesquite, yucca, creosote, and prickly pear cactus. Brown and Caldwell observed indications in the soil of water erosion along the edges of the pit.

A livestock corral is located on the southern portion of the Site, between the former pit and U.S. Highway 60. An unpaved road begins at the gate adjacent to the corral, continues around the west side of the corral to the north side where it divides in two and continues diagonally across the Site to the northeast and northwest. There is a barbed-wire fence at the eastern side of the Site that crosses diagonally at the northeastern corner of the Site. An area of dumped trash and debris was observed on the Site and is further discussed in Section 4.2 under Solid Waste.

4.2 INTERIOR AND EXTERIOR OBSERVATIONS

Current Uses of the Site – The Site is primarily undeveloped native desert land. The only current use of the Site appears to be for livestock grazing. Mr. Slusher indicated that the Site was most likely included in a much larger grazing lease by a local rancher. He also indicated that any future uses of the Site would have to allow access by the grazing leasee and would also have to protect the corral or move the corral through coordination with the leasee.

Hazardous Substance and Petroleum Products in Connection with Identified Uses – No indications of the former use of hazardous substances or petroleum products were observed at the Site.

Storage Tanks – None observed at the Site.

Odors – None observed at the Site.

Drums – Two unlabeled, empty drums that appeared to have been used as trash cans were observed at the Site.

Pits, Ponds, or Lagoons – The only pit observed at the Site was the former gravel pit used by ADOT.

Stained Soil or Pavement – None observed at the Site.

Stressed Vegetation – None observed at the Site.

Solid Waste – In the western portion of the former material pit, a large amount of trash and debris was present. The debris was comprised of broken glass containers, other household appliances, clothing, and other general domestic trash. Numerous empty bottles were also found that were labeled as some type of livestock antibiotic. Drums or potentially hazardous materials were not observed in the disposal area. Brown and Caldwell observed an empty compressed gas cylinder in the disposal area. A small refrigerator was observed in the disposal area that appeared to contain white insulation that is a suspect asbestos-containing material (ACM). A small abandoned travel trailer was observed at the Site located in the central portion of the south side of the former pit. The small trailer may also contain ACM although access was not possible due to the presence of a beehive in the trailer. No other areas of dumping were observed at the Site.

Wells – None observed at the Site. One water well was observed on the property adjacent to the east of the Site. This well had been capped in place and abandoned.

Polychlorinated Biphenyls (PCBs) – There were no sources of PCBs at the Site. There were no electrical lines on the Site.

4.3 INTERVIEWS WITH OWNERS AND OCCUPANTS

The purpose of interviews is to obtain information indicating *recognized environmental conditions* in connection with the property, as described in the ASTM Standard. Selected individuals who were knowledgeable about current and past Site operations were interviewed. On August 25, 2000, Brown and Caldwell conducted a personal interview with Mr. Gary Slusher with the ASLD. The following is a brief summary of the information provided by Mr. Slusher when he was questioned about the Site.

According to Mr. Slusher, the Site was formerly used as an aggregate source pit by ADOT and has also been leased for cattle grazing. Mr. Slusher has been with the ASLD for approximately 13 years and is unaware of any other past operations at the Site.

4.4 ADJOINING PROPERTIES

Adjoining properties were visually examined from public access right-of-ways to make a cursory assessment for the current land use and its potential for *recognized environmental conditions* that may have impact on the Site. Reconnaissance of *adjoining properties* was performed by viewing land use from legal boundaries, or by walking upon the adjoining properties that were legally accessible. *Adjoining properties* to the Site are as follows:

- **North** Undeveloped land owned by ASLD.
- **South** US Highway 60 and a livestock corral and tank.
- **East** Private undeveloped land.
- **West** Undeveloped land owned by ASLD.

5.0 SUMMARY AND CONCLUSIONS

Brown and Caldwell has performed a Phase I ESA of the Forepaugh Mineral Pit, in Maricopa County, Arizona, in conformance with the scope and limitations of ASTM Practice E1527-97. Any exceptions to or deviations from this practice are described in Section 1.4 of this report.

5.1 SUMMARY OF FINDINGS AND OPINIONS

Brown and Caldwell has performed a Phase I ESA of the Site and the findings are presented in the following summary.

- The Site appears to have been undeveloped to the present day, except for a livestock corral located on the southern portion of the Site, just north of U.S. Highway 60. The historical use has been as a gravel source pit and livestock grazing. The ADOT used the Site as a gravel source sometime between 1931 and present day.

- There were no listings for the Site or surrounding areas within the minimum search distance in the government database records search performed by EDR.

- Disposal of trash and debris has occurred on the Site. The disposal has occurred in an area located in the northwestern portion of the former pit. There is also an abandoned travel trailer in the southern portion of the pit. Disposal of solid waste on property is not allowed in Arizona except within licensed and permitted solid waste facilities.

- There is an abandoned and capped water well located on the property adjacent to the east, which appears to be private land.

5.2 CONCLUSIONS

This Phase I ESA has revealed no evidence of *recognized environmental conditions* in connection with the property.

5.3 RECOMMENDATIONS

Based upon the results of the ESA, Brown and Caldwell makes the following recommendations:

- Remove and properly dispose of the domestic trash and debris at the Site. The trailer is also to be removed and properly disposed.
- Solid waste that contains suspect ACM, the refrigerator and trailer, will require special handling and disposal in accordance with the National Emission Standard for Hazardous Air Pollutants (NESHAP) for asbestos (40 CFR 61, Subpart M).

5.4 SIGNATURES OF ENVIRONMENTAL PROFESSIONALS

Janice Petticrew
Environmental Scientist

12/8/00
Date

Kevin Hebert, R.G.
Senior Geologist

12/8/00
Date

6.0 REFERENCES

American Society for Testing and Materials (ASTM), May, 1997. *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process (Practice E1527-97).*

Arizona Department of Transportation, Photogrammetry and Mapping Services, March 4, 1998. Aerial Photograph. No. 3548, 3-22.

Bouas, Ken. Arizona Department of Transportation. Materials Group. File No. 2827, dated December 2, 1931. Personal Communication on August 17, 2000.

Collins, Rob. Maricopa County Environmental Response and Complaints, September 7, 2000. Facsimile Communication.

Environmental Data Resources, Inc., August 10, 2000. *The EDR Radius Map with GeoCheck®.* Inquiry No. 0527141.6r.

Environmental Data Resources, Inc., August 10, 2000. *The EDR-Historical Topographic Map Report.* Inquiry No. 527141-3.

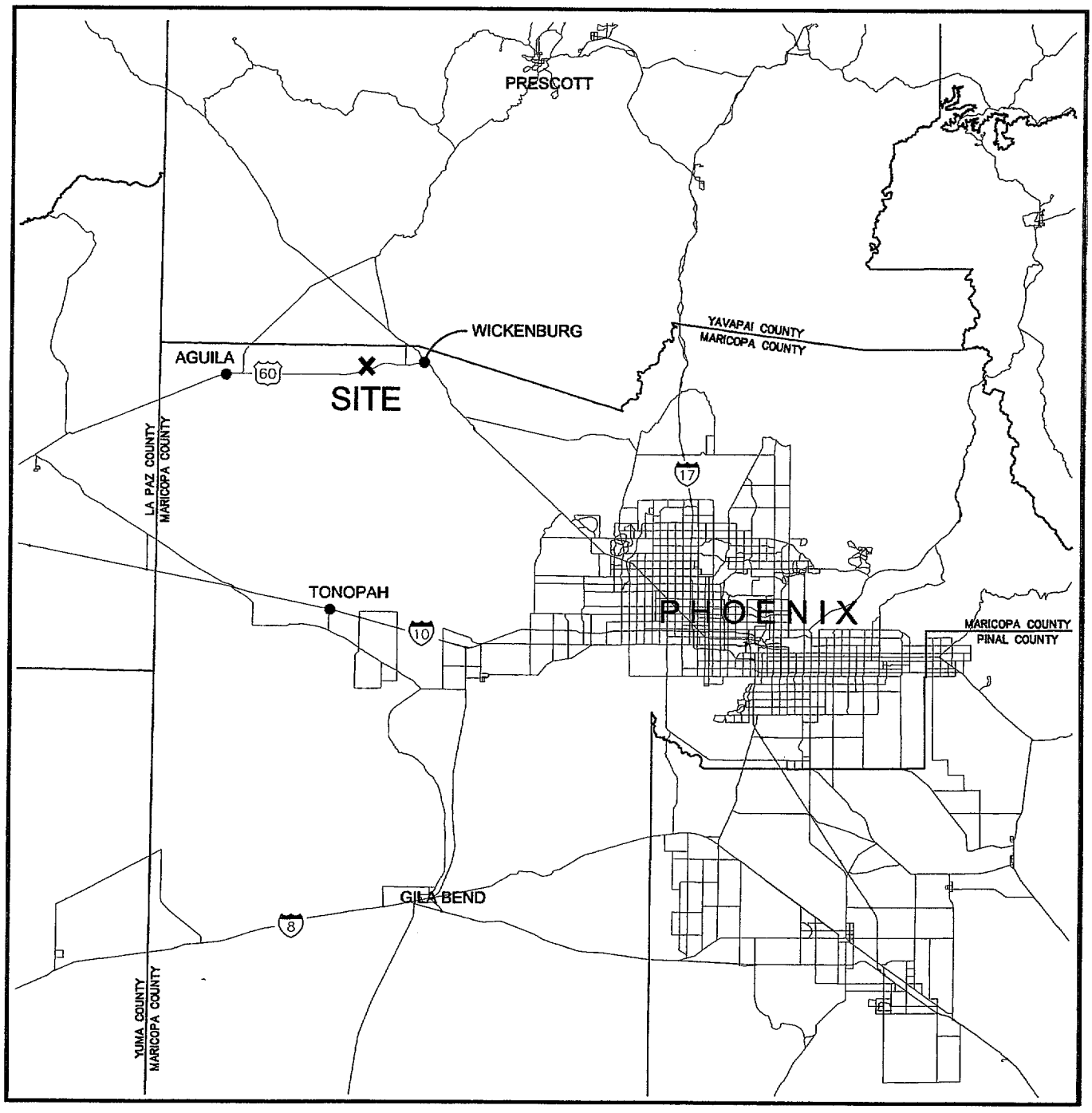
Lamidas, Tony. Arizona Department of Agriculture, Native Plant Division, Phoenix Office, August 25, 2000. Plant Survey.

Remick, W. H., 1981. *Hydrologic Map Series Report Number 6, December 1981. Maps Showing Ground-Water Conditions in the McMullen Valley Area, Maricopa, Yavapai, and Yuma Counties, Arizona.*

Slusher, Gary. Arizona State Land Department, August 25, 2000. Personal Communication.

United States Department of Agriculture, Soil Conservation Service, April 1986. *Soil Survey of Aguila-Carefree Area, Parts of Maricopa and Pinal Counties, Arizona.* Sheet No. 4 of 51.

United States Geological Service (USGS), 1990. *Outlaw Hill, Arizona, 7.5-Minute Topographic Map.*



0 10 20

APPROXIMATE SCALE IN MILES

Figure 1

SITE VICINITY MAP
FOREPAUGH MINERAL PIT
WEST OF WICKENBURG
MARICOPA COUNTY, ARIZONA

BROWN AND CALDWELL
Phoenix, Arizona

P:\Cad\ES\MARICOPA\9422\F9422004.dwg (1=1) 12-05-00 JCollier

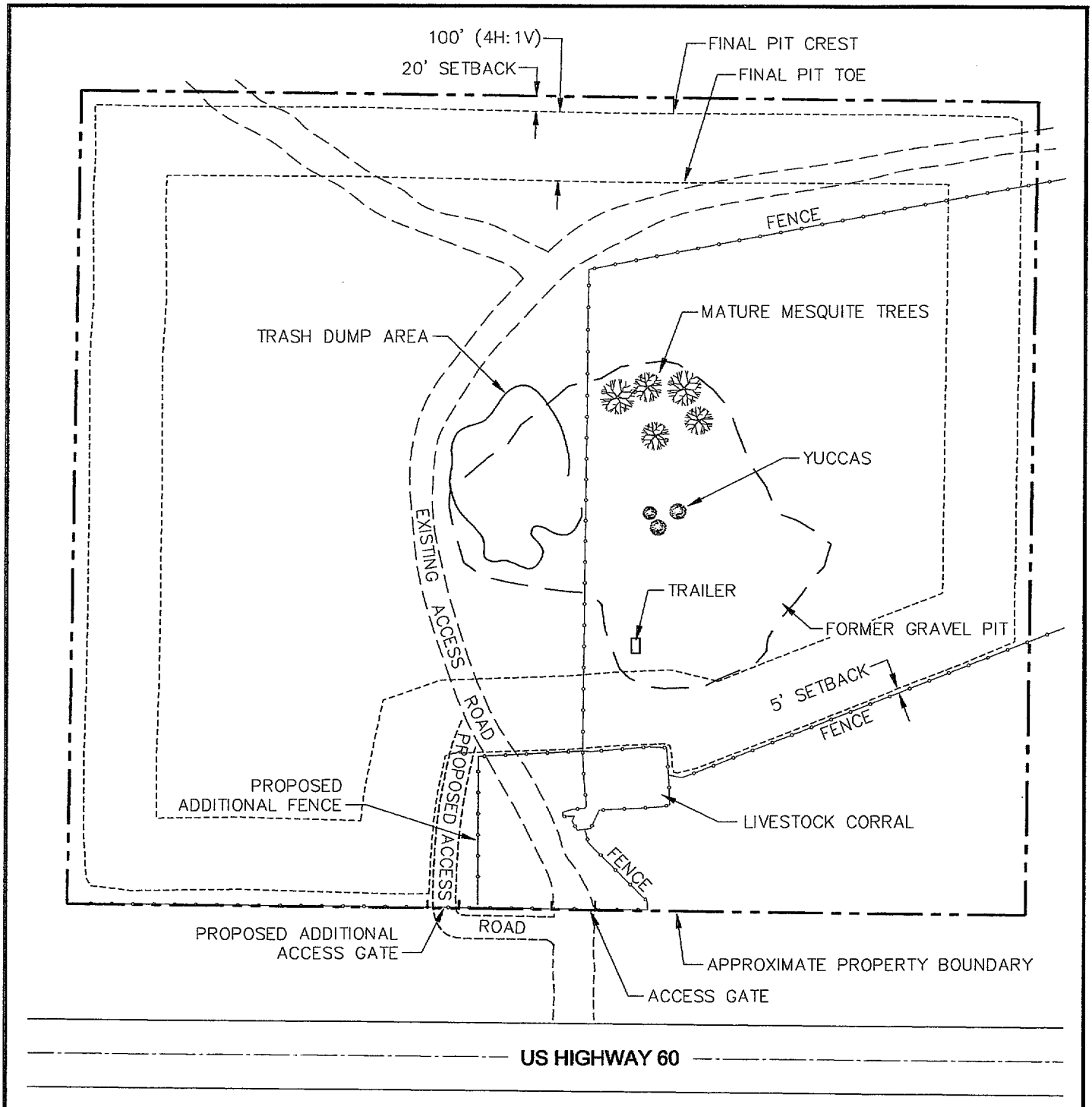
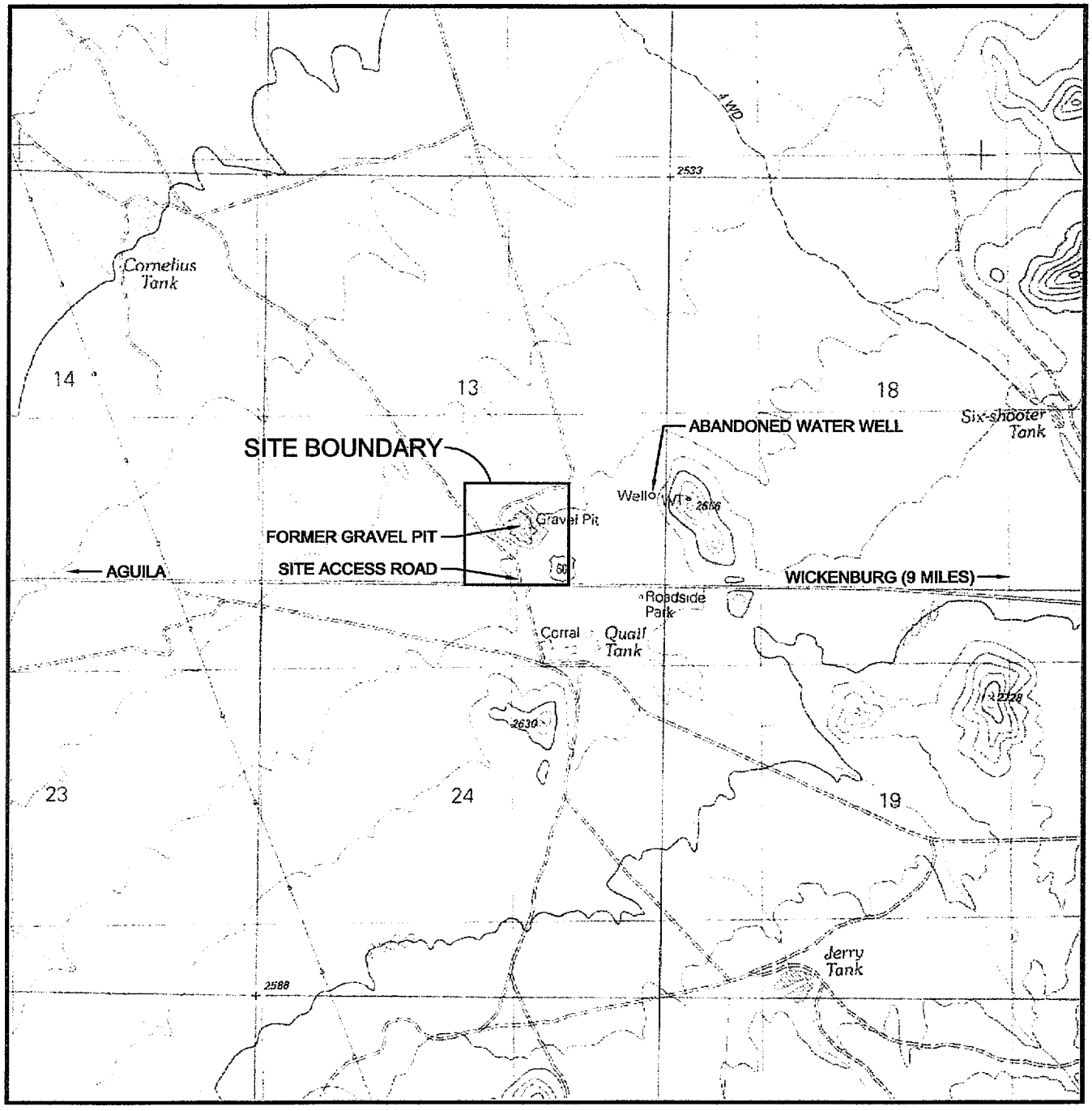


Figure 2

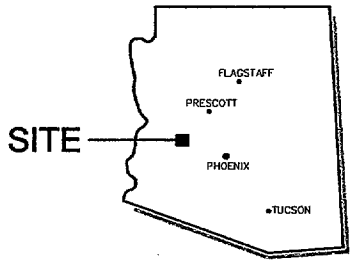
SITE DIAGRAM
FOREPAUGH MINERAL PIT
U.S. HIGHWAY 60, WEST OF WICKENBURG
MARICOPA COUNTY, ARIZONA

BROWN AND CALDWELL
Phoenix, Arizona

P:\Cad\ES\MARICOPA\9422\F9422005.dwg (1=1) 12-06-00 JCollier



SOURCE: USGS 7.5 MINUTE TOPOGRAPHIC QUADRANGLE MAP – OUTLAW HILL, ARIZONA



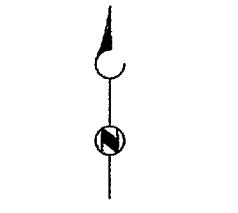


Figure 3

SITE TOPOGRAPHIC MAP
FOREPAUGH MINERAL PIT
WEST OF WICKENBURG
MARICOPA COUNTY, ARIZONA

BROWN AND CALDWELL
Phoenix, Arizona

P:\Cad\ES\MARICOPA\9422\F9422002.dwg (1=1) 12-05-00 JCollier

APPENDIX A

SCOPE OF WORK

EXHIBIT A - SCOPE OF SERVICES
PHASE I ENVIRONMENTAL SITE ASSESSMENT

Brown and Caldwell Consultants, Inc. (BC) will perform a Phase I Environmental Site Assessment (ESA) of the *property* in accordance with American Society for the Testing of Materials (ASTM) Standard E 1527 - 97. The scope of these services will include the following tasks. All italicized terms refer to the definitions set forth in Section 3.2 of the ASTM Standard. All work will be performed under the supervision of a qualified *environmental professional.*

TASK 1.0 - RECORDS REVIEW

BC will obtain and review *reasonably ascertainable* and *practically reviewable* records in an attempt to identify *recognized environmental conditions* in connection with the *property.* BC may utilize commercial sources for some aspects of the records review. The records will include the following *standard environmental record sources*

List	Approximate Minimum Search Distance (miles)
Federal NPL Site List	1.0
Federal CERCLIS List	0.5
Federal CORRACTS TSD Facility List	1.0
Federal RCRA non-CORRACTS TSD Facility List	0.5
Federal RCRA Generator List	*property* and adjoining properties
Federal ERNS List	*property* only
State Equivalent Superfund List	1.0
State Equivalent CERCLIS	0.5
State Open Landfills List	0.5
State Closed Landfills and Dumps List	0.5
State Registered UST List	*property* and adjoining properties
State Reported Leaking UST List	0.5

Task 1.1 - Additional Environmental Record Sources

The records may include one or more of the following *additional environmental record sources,* at the discretion of the *environmental professional,* to enhance and supplement the federal and state sources identified above.

List	Approximate Search Distance (miles)
Local or County Lists of Landfill/Solid Waste Disposal Sites	0.5
Records of Emergency Release Reports (SARA 304)	*property only*
Records of Contaminated Public Wells	0.5
Fire Department	*property only*
Local Water Quality Agency	0.5
Local Electric Utility Companies (for information relating to PCBs)	*property only*

Task 1.2 - Standard Physical Setting Source

BC will review a current USGS 7.5 Minute Topographic Map showing the area on which the *property* is located.

Task 1.3 - Standard Historical Sources

BC will review *reasonably ascertainable standard historical sources* in an attempt to develop a history of the previous uses or occupancies of the *property* and surrounding area. The objective will be to identify those uses or occupancies that are likely to have led to *recognized environmental conditions* in connection with the *property.* BC will attempt to identify uses or occupancies of the property from the present dating back to 1940, or until the property was first developed, whichever is earlier. At least one of the standard historical sources will be researched to 1940, or a combination of historical sources will be used to determine the use or occupancies of the property dating back to 1940, or until the property was first developed. Search intervals will be such to adequately establish the site history within the extent records are *reasonably ascertainable.*

1. Aerial Photographs
2. Fire Insurance Maps
3. Property Tax Files
4. Recorded Land Title Records*
5. USGS 7.5 Minute Topographic Maps
6. Local Street Directories
7. Building Department Records
8. Zoning/Land Use Records

* If authorized by client. The chain of title search is not included in the scope of services unless specifically added. The *user* should check or engage a title company to check for *reasonably ascertainable recorded land title records* for *environmental liens* currently recorded against the *property.* Any environmental liens currently recorded against the property should be reported to the environmental professional.

After checking all *reasonably ascertainable standard historical sources,* whatever history of previous site uses is available shall be deemed sufficient to comply with the ASTM Practice.

TASK 2.0 -SITE RECONNAISSANCE

BC will conduct a *site visit* to the *property* during which the periphery of the *property* shall be *physically and visually observed,* as well as any structure(s) located on the *property,* to the extent the property or structures are not obstructed by bodies of water, adjacent buildings or other obstacles. The methodology used to observe the property will be documented in the report, as well as limitations imposed by physical obstacles and limiting conditions. The *site visit* will include:

General Site Setting: Current use of the property, adjoining properties, and surrounding area; past uses of the property, adjoining properties, and surrounding area, if indicated by the site reconnaissance; geologic, hydrogeologic, hydrologic, and topographic conditions, as indicated by visual observations; roads and structures on the property; the source of potable water and the sewage disposal system for the property.

Interior Observations: The means of heating and cooling the buildings on the property, including the fuel source. Stains/corrosion, floor drains, and sumps, to the extent they are visually or physically observed or identified from interviews, shall be described in the report.

Exterior Observations: The presence of hazardous materials including, but not limited to, polychlorinated biphenyls (PCBs), pesticides, above or below ground fuel/chemical storage tanks and pipelines, drums, transformers, drains, sumps; drywells, unidentified substance containers, unusual land colorations, and odors and physical irregularities. The presence of wells, stressed vegetation from other than insufficient water, pits, ponds or lagoons, and stained soil or pavement. The presence of waste water discharges to surface waters, septic systems, drains, drywells, holding ponds and public sewer systems. The presence of systems to dispose of solid wastes and other liquid waste. The presence of fill material other than landscaping material.

Adjoining Properties: This will include a visual examination, to the degree possible without trespass, of land use conditions that may adversely affect the *property* including: underground or above ground storage tanks; pits, ponds, and lagoons; landfills; stains, odors, distressed vegetation, or other obvious indications of *recognized environmental conditions.*

TASK 3.0 - INTERVIEWS WITH OWNERS AND OCCUPANTS

BC will make reasonable attempts to interview *owners* or *occupants* of the property to obtain information regarding *recognized environmental conditions* in connection with the *property.* Prior to the *site visit,* the *user* (client) should identify a person with good knowledge of the *property.* If a *key site person* is not identified prior to the site visit, BC will inquire during the site visit, whether a person with good knowledge of the property is available to be interviewed at that time.

Prior to the site visit, the *user* should provide, or cause to be provided to BC any applicable environmental permits, site assessment reports, environmental audits, registration information for underground storage tanks, hazardous waste generator reports, manifests, material safety data sheets, environmental violation notices or environmental liens, or other documents applicable to an evaluation of *recognized environmental conditions* on the site, of which the *user* or *key site person* is aware.

TASK 4.0 -INTERVIEWS WITH LOCAL GOVERNMENT OFFICIALS

BC will make reasonable attempts to interview *local government officials* to obtain information regarding *recognized environmental conditions* in connection with the *property.* A reasonable attempt will be made to interview a staff member from the local fire department, and the county health agency for information regarding hazardous waste disposal and septic tank information. It should be noted that responses from local government officials may not be received within the time allotted for this assessment.

TASK 5.0 - EVALUATION AND REPORT PREPARATION

The report will generally follow the format outlined in ASTM E1527-97 unless otherwise specifically requested. The report will include documentation of all sources, including those that revealed no findings. Credentials of the environmental professional(s) involved in conducting the Phase I ESA will be provided including a qualifications statement of relevant experience of the individual(s) and corporate experience. The environmental professional(s) responsible for the Phase I ESA shall sign the report.

The report shall state whether the *user* (client) reported to the *environmental professional* any information pursuant to the *user's* responsibilities.

The report shall include the *environmental professional's* opinion of the impact of *recognized environmental conditions* in connection with the *property.*

The report shall have a findings and conclusions section that states one of the following:

"BC has performed a *Phase I Environmental Site Assessment* in conformance with the scope and limitations of ASTM Practice E 1527 of, the *property*. Any exceptions to, or deletions from, this practice are described in Section [ ] of this report. This assessment has revealed no evidence of recognized environmental conditions in connection with the property," or

"BC has performed a *Phase I Environmental Site Assessment* in conformance with the scope and limitations of ASTM Practice E 1527 of, the *property*. Any exceptions to, or deletions from, this practice are described in Section [ ] of this report. This assessment has revealed no evidence of recognized environmental conditions in connection with the *property* except for the following: (list)."

All deletions and deviations from this practice shall be listed individually and in detail, and all additions shall be listed.

Any additional services including a broader scope of assessment, more detailed conclusions, liability/risk evaluations, work plans for Phase II investigations, remediation techniques, etc., are beyond the scope of this practice.

LIMITATIONS OF THIS SCOPE OF SERVICES

Not every *property* will warrant the same level of assessment. Consistent with good commercial or customary practice, the appropriate level of environmental site assessment will be guided by the type of property subject to assessment for expertise and risk tolerance of the user, and the information developed in the course of inquiry.

The Phase I ESA process is not intended to provide a guarantee regarding the presence or absence of *petroleum products* or *hazardous substances* on the *property*. The findings and conclusions of this assessment will be limited by the following factors:

1. The proposed scope of work is not an exhaustive inquiry, but represents an appropriate, commercially prudent, and reasonable level of effort. In accordance with the ASTM Standard, this assessment is intended to reduce, but not eliminate, the level of uncertainty regarding the potential for recognized environmental conditions on the Site.

2. The availability of data may be limited, particularly in regards to historical Site uses. Where such limitations are material to the conclusions of the assessment, they will be identified in the report.

3. BC cannot verify the accuracy of data obtained from government agencies, commercial sources, interview subjects, and other third-party sources.

This Phase I ESA represents conditions which exist at the time the work is performed, and should not be considered indicative of conditions which may exist at a substantially later date. The assessment will be completed in accordance with a reasonable understanding of the *recognized environmental conditions* and regulatory standards which exist at the time the work is performed.

ASSUMPTIONS

BC's proposal to complete these services within the quoted cost and time are based upon certain assumptions. These include the cooperation of the site owners and occupants, and full access to the entire site without delay or re-work. BC also assumes that if the *user* is aware of any specialized knowledge or experience that is material to *recognized environmental conditions* in connection with the *property*, the *user* will communicate any information based on such specialized knowledge or experience to the *environmental professional* prior to the site visit.

EXCLUSIONS

This Scope of Services does not include an evaluation of issues which are not addressed in the ASTM standard. Non-scope considerations a client may wish to address in connection with a Phase I ESA are listed below:

Archeological or other Cultural Resources
Flood Zone Information (FEMA)
Lead in Drinking Water
Radon
Wetlands
Asbestos-Containing Materials
Lead-Based Paint
Occupational Safety and Health Hazards
Threatened or Endangered Plants and Animals

This list of non-scope considerations is not intended to be all-inclusive.

APPENDIX B

ENVIRONMENTAL DATA RESOURCES, INC., EDR-RADIUS MAP REPORT

The EDR-Radius Map
with GeoCheck®

Forepaugh Mineral Pit
West Highway 60
Wickenburg, AZ 85390

Inquiry Number: 0527141.6r

August 10, 2000

Environmental Data Resources, Inc.
an edr company

***The* Source For Environmental Risk Management Data**

3530 Post Road
Southport, Connecticut 06490

Nationwide Customer Service

Telephone: 1-800-352-0050
Fax: 1-800-231-6802
Internet: www.edrnet.com

TABLE OF CONTENTS

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc. (EDR). The report meets the government records search requirements of ASTM Standard Practice for Environmental Site Assessments, E 1527-00. Search distances are per ASTM standard or custom distances requested by the user.

TARGET PROPERTY INFORMATION

ADDRESS

WEST HIGHWAY 60
WICKENBURG, AZ 85390

COORDINATES

Latitude (North):	33.944400 - 33° 56' 39.8"
Longitude (West):	112.936100 - 112° 56' 10.0"
Universal Tranverse Mercator:	Zone 12
UTM X (Meters):	321072.0
UTM Y (Meters):	3757485.2

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property:	2433112-H8 OUTLAW HILL, AZ
Source:	USGS 7.5 min quad index

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the ASTM E 1527-00 search radius around the target property for the following databases:

FEDERAL ASTM STANDARD

NPL ---------- National Priority List
Delisted NPL ---------- NPL Deletions
CERCLIS ---------- Comprehensive Environmental Response, Compensation, and Liability Information System
CERC-NFRAP ---------- Comprehensive Environmental Response, Compensation, and Liability Information System
CORRACTS ---------- Corrective Action Report
RCRIS-TSD ---------- Resource Conservation and Recovery Information System
RCRIS-LQG ---------- Resource Conservation and Recovery Information System
RCRIS-SQG ---------- Resource Conservation and Recovery Information System
ERNS ---------- Emergency Response Notification System

STATE ASTM STANDARD

SPL ---------- Superfund Program List
SHWS ---------- State Haz. Waste
SWF/LF ---------- Directory of Solid Waste Facilities

EXECUTIVE SUMMARY

LUST ..... Leaking Tank Listing
UST ..... Underground Storage Tank Listing
Az Wqarf ..... Water Quality Assurance Revolving Fund

FEDERAL ASTM SUPPLEMENTAL

CONSENT ..... CONSENT
ROD ..... ROD
FINDS ..... Facility Index System/Facility Identification Initiative Program Summary Report
HMIRS ..... Hazardous Materials Information Reporting System
MLTS ..... Material Licensing Tracking System
MINES ..... Mines Master Index File
NPL Lien ..... NPL Liens
PADS ..... PCB Activity Database System
RAATS ..... RCRA Administrative Action Tracking System
TRIS ..... Toxic Chemical Release Inventory System
TSCA ..... Toxic Substances Control Act

STATE OR LOCAL ASTM SUPPLEMENTAL

AST ..... List of Aboveground Storage Tanks
AZ Spills ..... AZ Spills
Az DOD ..... Department of Defense Sites
Az WWFAC ..... Waste Water Treatment Facilities
Az Aquifers ..... Az Aquifers
Dry Well ..... Az. Dry Well
AIRS ..... Arizona Airs Database

EDR PROPRIETARY DATABASES

Coal Gas ..... Former Manufactured gas (Coal Gas) Sites.

SURROUNDING SITES: SEARCH RESULTS

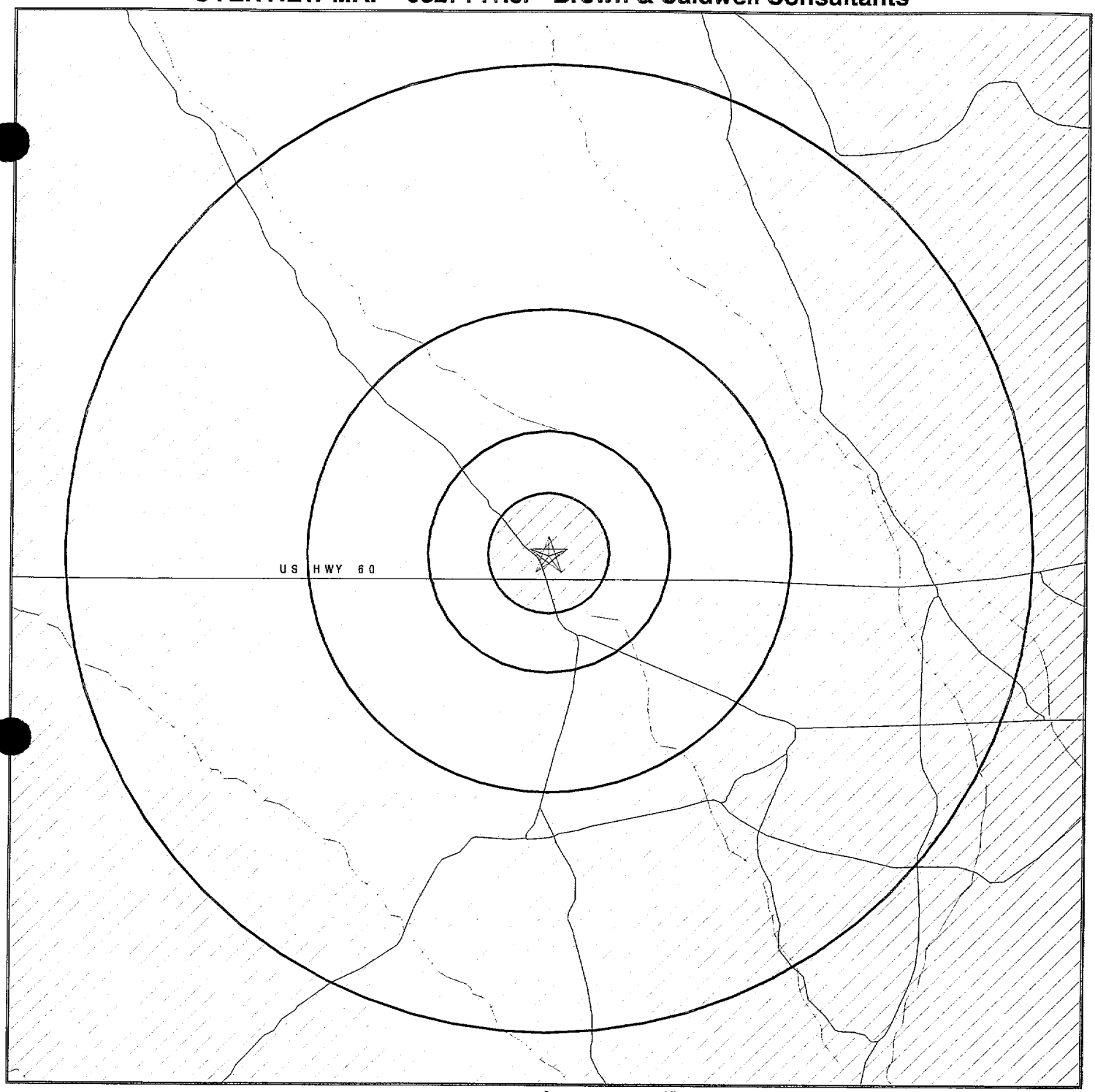
Surrounding sites were identified.

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped:

Site Name	Database(s)
MERV GRIFFIN'S WICKENBURG INN	Az WWFAC
ADOT WICKENBURG MAINTENANCE YARD	UST, LUST
WASTE WATER TREATMENT PLANT	UST, LUST
WICKENBURG MUNICIPAL AIRPORT	UST
FUELCO #111	UST
WESTERN STATES PETROLEUM	UST
WOODY'S #106	UST
STAKER PAVING	RCRIS-SQG
SUN HEALTH WICKENBURG CLINIC	RCRIS-SQG, FINDS

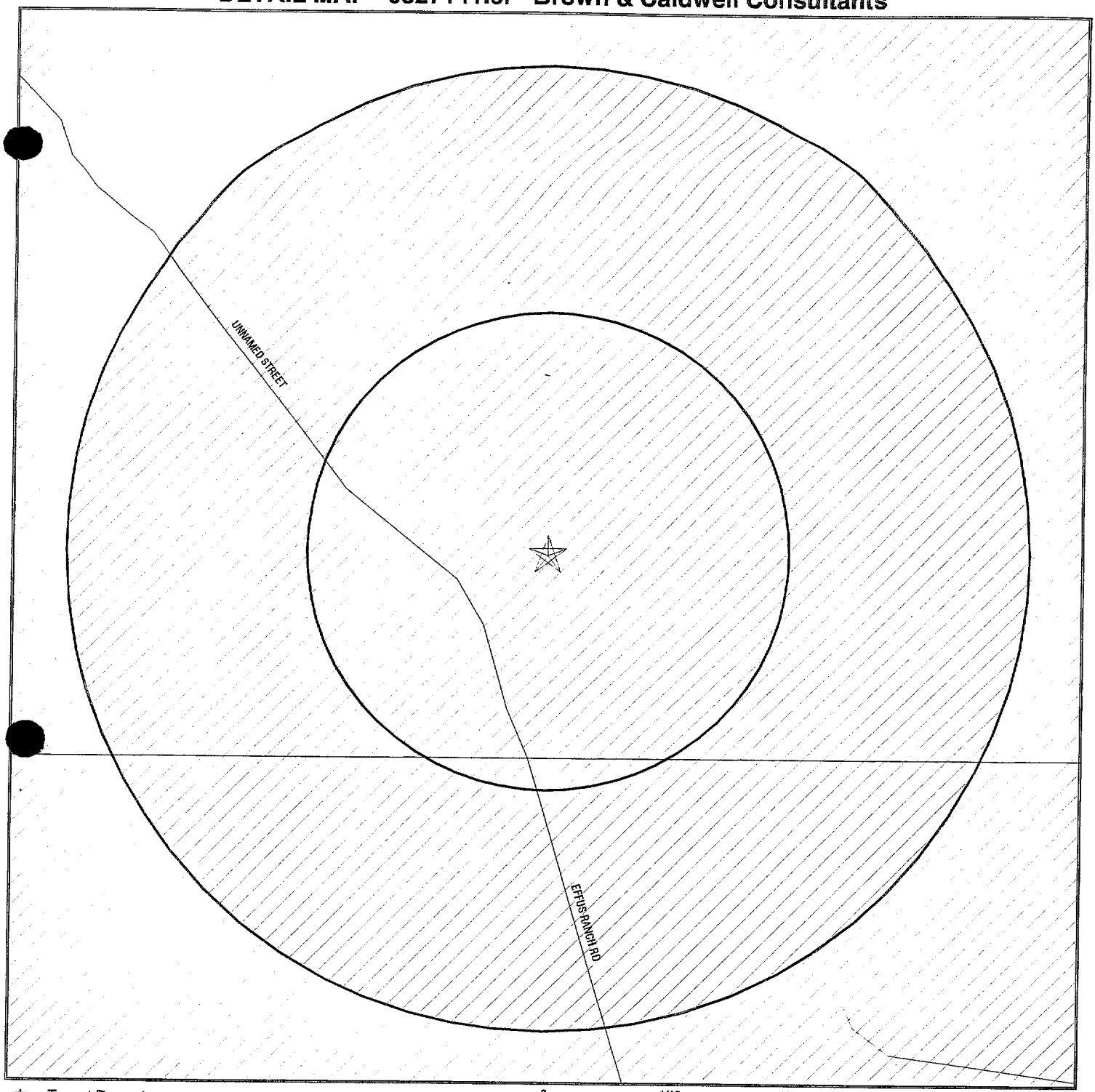
OVERVIEW MAP - 0527141.6r - Brown & Caldwell Consultants



- ☆ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- Coal Gasification Sites (if requested)
- National Priority List Sites
- Landfill Sites
- Power transmission lines
- Oil & Gas pipelines
- 100-year flood zone
- 500-year flood zone
- Dept. of Defense Sites
- Water Quality Assurance Revolving Fund Areas

TARGET PROPERTY:	Forepaugh Mineral Pit	CUSTOMER:	Brown & Caldwell Consultants
ADDRESS:	West Highway 60	CONTACT:	Janice Petticrew
CITY/STATE/ZIP:	Wickenburg AZ 85390	INQUIRY #:	0527141.6r
LAT/LONG:	33.9444 / 112.9361	DATE:	August 10, 2000 11:50 am

DETAIL MAP - 0527141.6r - Brown & Caldwell Consultants



- ☆ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- Coal Gasification Sites (if requested)
- Sensitive Receptors
- National Priority List Sites
- Landfill Sites
- Power transmission lines
- Oil & Gas pipelines
- 100-year flood zone
- 500-year flood zone
- Dept. of Defense Sites
- Water Quality Assurance Revolving Fund Areas

TARGET PROPERTY:	Forepaugh Mineral Pit	CUSTOMER:	Brown & Caldwell Consultants
ADDRESS:	West Highway 60	CONTACT:	Janice Petticrew
CITY/STATE/ZIP:	Wickenburg AZ 85390	INQUIRY #:	0527141.6r
LAT/LONG:	33.9444 / 112.9361	DATE:	August 10, 2000 11:51 am

MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
FEDERAL ASTM STANDARD								
NPL		2.000	0	0	0	0	0	0
Delisted NPL		1.500	0	0	0	0	0	0
CERCLIS		2.000	0	0	0	0	0	0
CERC-NFRAP		2.000	0	0	0	0	0	0
CORRACTS		2.000	0	0	0	0	0	0
RCRIS-TSD		2.000	0	0	0	0	0	0
RCRIS Lg. Quan. Gen.		0.500	0	0	0	NR	NR	0
RCRIS Sm. Quan. Gen.		0.500	0	0	0	NR	NR	0
ERNS		0.500	0	0	0	NR	NR	0
STATE ASTM STANDARD								
SPL		1.000	0	0	0	0	NR	0
State Haz. Waste		2.000	0	0	0	0	0	0
State Landfill		2.000	0	0	0	0	0	0
LUST		2.000	0	0	0	0	0	0
UST		0.500	0	0	0	NR	NR	0
Az Wqarf		1.500	0	0	0	0	0	0
FEDERAL ASTM SUPPLEMENTAL								
CONSENT		1.500	0	0	0	0	0	0
ROD		1.500	0	0	0	0	0	0
FINDS		0.500	0	0	0	NR	NR	0
HMIRS		0.500	0	0	0	NR	NR	0
MLTS		0.500	0	0	0	NR	NR	0
MINES		0.500	0	0	0	NR	NR	0
NPL Liens		0.500	0	0	0	NR	NR	0
PADS		0.500	0	0	0	NR	NR	0
RAATS		0.500	0	0	0	NR	NR	0
TRIS		0.500	0	0	0	NR	NR	0
TSCA		0.500	0	0	0	NR	NR	0
STATE OR LOCAL ASTM SUPPLEMENTAL								
AST		TP	NR	NR	NR	NR	NR	0
AZ Spills		0.500	0	0	0	NR	NR	0
Az DOD		1.000	0	0	0	0	NR	0
Az WWFAC		1.000	0	0	0	0	NR	0
Az Aquifers		0.500	0	0	0	NR	NR	0
Az. Dry Well		0.500	0	0	0	NR	NR	0
AIRS		0.500	0	0	0	NR	NR	0
EDR PROPRIETARY DATABASES								
Coal Gas		1.500	0	0	0	0	0	0

MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
AQUIFLOW - see EDR Physical Setting Source Addendum								

TP = Target Property

NR = Not Requested at this Search Distance

* Sites may be listed in more than one database

Coal Gas Site Search: No site was found in a search of Real Property Scan's ENVIROHAZ database.

NO SITES FOUND

City	EDR ID	Site Name	Site Address	Zip	Database(s)	Facility ID
WICKENBURG	1001959689	STAKER PAVING	HWY 93 MP172 N OF WICKENBURG	85390	RCRIS-SQG	
WICKENBURG	U000017724	WICKENBURG MUNICIPAL AIRPORT	W CALIFORNIA HWY	85390	UST	0-005659
WICKENBURG	U003049392	ADOT WICKENBURG MAINTENANCE YARD	52417 NW GRAND AVE US 60 MP 11	85390	UST, LUST	0-000272
WICKENBURG	S103277910	MERV GRIFFIN'S WICKENBURG INN	34801 NORTH HIGHWAY 89	85390	Az WWFAC	
WICKENBURG	U003547431	FUELCO #111	30210 W HWY 60	85390	UST	0-005625
WICKENBURG	U003547354	WESTERN STATES PETROLEUM	30210 W HWY 60	85390	UST	0-001789
WICKENBURG	U003229257	WASTE WATER TREATMENT PLANT	SOUTH TEGNER ST	85390	UST, LUST	0-009202
WICKENBURG	U001627638	WOODY'S #106	1051 W WHIPPLE/1145 W WICKENBU	85390	UST	0-005704
WICKENBURG	1001122695	SUN HEALTH WICKENBURG CLINIC	636 W WICKENBURG WAY STE 100	85390	RCRIS-SQG, FINDS	

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Elapsed ASTM days: Provides confirmation that this EDR report meets or exceeds the 90-day updating requirement of the ASTM standard.

FEDERAL ASTM STANDARD RECORDS

NPL: National Priority List
Source: EPA
Telephone: N/A
National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC).

Date of Government Version: 06/13/00
Date Made Active at EDR: 07/06/00
Database Release Frequency: Semi-Annually
Date of Data Arrival at EDR: 06/27/00
Elapsed ASTM days: 9
Date of Last EDR Contact: 05/09/00

DELISTED NPL: NPL Deletions
Source: EPA
Telephone: N/A
The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 06/13/00
Date Made Active at EDR: 07/06/00
Database Release Frequency: Semi-Annually
Date of Data Arrival at EDR: 06/27/00
Elapsed ASTM days: 9
Date of Last EDR Contact: 05/09/00

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System
Source: EPA
Telephone: 703-413-0223
CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 02/14/00
Date Made Active at EDR: 03/15/00
Database Release Frequency: Quarterly
Date of Data Arrival at EDR: 03/02/00
Elapsed ASTM days: 13
Date of Last EDR Contact: 05/31/00

CERCLIS-NFRAP: No Further Remedial Action Planned
Source: EPA
Telephone: 703-413-0223
As of February 1995, CERCLIS sites designated "No Further Remedial Action Planned" (NFRAP) have been removed from CERCLIS. NFRAP sites may be sites where, following an initial investigation, no contamination was found, contamination was removed quickly without the need for the site to be placed on the NPL, or the contamination was not serious enough to require Federal Superfund action or NPL consideration. EPA has removed approximately 25,000 NFRAP sites to lift the unintended barriers to the redevelopment of these properties and has archived them as historical records so EPA does not needlessly repeat the investigations in the future. This policy change is part of the EPA's Brownfields Redevelopment Program to help cities, states, private investors and affected citizens to promote economic redevelopment of unproductive urban sites.

Date of Government Version: 02/14/00
Date Made Active at EDR: 03/15/00
Database Release Frequency: Quarterly
Date of Data Arrival at EDR: 03/02/00
Elapsed ASTM days: 13
Date of Last EDR Contact: 05/31/00

CORRACTS: Corrective Action Report
Source: EPA
Telephone: 800-424-9346
CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 04/20/00
Date Made Active at EDR: 08/01/00
Database Release Frequency: Semi-Annually
Date of Data Arrival at EDR: 06/12/00
Elapsed ASTM days: 50
Date of Last EDR Contact: 06/12/00

RCRIS: Resource Conservation and Recovery Information System
Source: EPA/NTIS
Telephone: 800-424-9346
Resource Conservation and Recovery Information System. RCRIS includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA).

Date of Government Version: 05/18/00
Date Made Active at EDR: 08/01/00
Database Release Frequency: Semi-Annually
Date of Data Arrival at EDR: 06/01/00
Elapsed ASTM days: 61
Date of Last EDR Contact: 06/19/00

ERNS: Emergency Response Notification System
Source: EPA/NTIS
Telephone: 202-260-2342
Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 05/30/00
Date Made Active at EDR: 07/06/00
Database Release Frequency: Quarterly
Date of Data Arrival at EDR: 06/02/00
Elapsed ASTM days: 34
Date of Last EDR Contact: 05/16/00

FEDERAL ASTM SUPPLEMENTAL RECORDS

BRS: Biennial Reporting System
Source: EPA/NTIS
Telephone: 800-424-9346
The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/97
Database Release Frequency: Biennially
Date of Last EDR Contact: 06/19/00
Date of Next Scheduled EDR Contact: 09/18/00

CONSENT: Superfund (CERCLA) Consent Decrees
Source: EPA Regional Offices
Telephone: Varies
Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: N/A
Database Release Frequency: Varies
Date of Last EDR Contact: N/A
Date of Next Scheduled EDR Contact: N/A

ROD: Records Of Decision
Source: NTIS
Telephone: 703-416-0223
Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 01/31/99
Database Release Frequency: Annually
Date of Last EDR Contact: 07/12/00
Date of Next Scheduled EDR Contact: 10/09/00

FINDS: Facility Index System/Facility Identification Initiative Program Summary Report
Source: EPA
Telephone: N/A
Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 10/13/99
Database Release Frequency: Quarterly
Date of Last EDR Contact: 07/13/00
Date of Next Scheduled EDR Contact: 10/09/00

HMIRS: Hazardous Materials Information Reporting System
Source: U.S. Department of Transportation
Telephone: 202-366-4526
Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 06/30/99
Database Release Frequency: Annually
Date of Last EDR Contact: 07/25/00
Date of Next Scheduled EDR Contact: 10/23/00

MLTS: Material Licensing Tracking System
Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/23/00
Database Release Frequency: Quarterly
Date of Last EDR Contact: 07/10/00
Date of Next Scheduled EDR Contact: 10/09/00

MINES: Mines Master Index File
Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959

Date of Government Version: 08/01/98
Database Release Frequency: Semi-Annually
Date of Last EDR Contact: 07/06/00
Date of Next Scheduled EDR Contact: 10/02/00

NPL LIENS: Federal Superfund Liens
Source: EPA
Telephone: 205-564-4267
Federal Superfund Liens. Under the authority granted the USEPA by the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner receives notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/91
Database Release Frequency: No Update Planned
Date of Last EDR Contact: 05/22/00
Date of Next Scheduled EDR Contact: 08/21/00

PADS: PCB Activity Database System
Source: EPA
Telephone: 202-260-3936
PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 01/01/00
Database Release Frequency: No Update Planned
Date of Last EDR Contact: 05/15/00
Date of Next Scheduled EDR Contact: 08/14/00

RAATS: RCRA Administrative Action Tracking System
Source: EPA
Telephone: 202-564-4104
RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/95
Database Release Frequency: No Update Planned
Date of Last EDR Contact: 06/12/00
Date of Next Scheduled EDR Contact: 09/11/00

TRIS: Toxic Chemical Release Inventory System
Source: EPA
Telephone: 202-260-1531
Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/97
Database Release Frequency: Annually
Date of Last EDR Contact: 07/21/00
Date of Next Scheduled EDR Contact: 09/25/00

TSCA: Toxic Substances Control Act
Source: EPA
Telephone: 202-260-1444
Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/98
Database Release Frequency: Every 4 Years
Date of Last EDR Contact: 07/25/00
Date of Next Scheduled EDR Contact: 10/23/00

STATE OF ARIZONA ASTM STANDARD RECORDS

SPL: Superfund Program List
Source: Dept. of Environmental Quality
Telephone: 602-207-4360
The list is representative of the sites and potential sites within the jurisdiction of the Superfund Program Section. It is comprised of the following elements: 1) Water Quality Assurance Revolving Fund Registry Sites; 2) Potential WQARF Registry sites; 3) NPL sites; and 4) Department of Defense sites requiring SPS oversight.

Date of Government Version: 05/10/00
Date Made Active at EDR: 07/12/00
Database Release Frequency: Semi-Annually
Date of Data Arrival at EDR: 06/08/00
Elapsed ASTM days: 34
Date of Last EDR Contact: 06/08/00

SHWS: ZipAcids
Source: Department of Environmental Quality
Telephone: 602-207-2202
The ACIDS list consists of more than 750 locations subject to investigation under the State Water Quality Assurance Revolving Fund (WQARF) and Federal CERCLA programs.

Date of Government Version: 01/03/00
Date Made Active at EDR: 05/16/00
Database Release Frequency: Semi-Annually
Date of Data Arrival at EDR: 04/11/00
Elapsed ASTM days: 35
Date of Last EDR Contact: 07/25/00

LF: Directory of Solid Waste Facilities
Source: Department of Environmental Quality
Telephone: 602-207-4132
Solid Waste Facilities/Landfill Sites. SWF/LF type records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. Depending on the state, these may be active or inactive facilities or open dumps that failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 06/21/99
Date Made Active at EDR: 09/10/99
Database Release Frequency: Annually
Date of Data Arrival at EDR: 07/14/99
Elapsed ASTM days: 58
Date of Last EDR Contact: 07/06/00

LUST: Leaking Tank Listing
Source: Department of Environmental Quality
Telephone: 602-207-4345
Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state.

Date of Government Version: 04/19/00
Date Made Active at EDR: 06/27/00
Database Release Frequency: Quarterly
Date of Data Arrival at EDR: 06/05/00
Elapsed ASTM days: 22
Date of Last EDR Contact: 05/15/00

UST: Underground Storage Tank Listing
Source: Department of Environmental Quality
Telephone: 602-207-4345
Registered Underground Storage Tanks. UST's are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA) and must be registered with the state department responsible for administering the UST program. Available information varies by state program.

Date of Government Version: 01/03/00
Date Made Active at EDR: 03/17/00
Database Release Frequency: Annually
Date of Data Arrival at EDR: 02/14/00
Elapsed ASTM days: 32
Date of Last EDR Contact: 07/17/00

WQARF: Water Quality Assurance Revolving Fund Sites
Source: Department of Environmnetal Quality
Telephone: 602-207-2202
Sites which may have an actual or potential impact upon the waters of the state, cause by hazardous substances. The WQARF program provides matching funds to political subdivisions and other state agencies for clean-up activities.

Date of Government Version: 05/06/99
Date Made Active at EDR: 06/11/99
Database Release Frequency: Annually
Date of Data Arrival at EDR: 05/13/99
Elapsed ASTM days: 29
Date of Last EDR Contact: 02/28/00

STATE OF ARIZONA ASTM SUPPLEMENTAL RECORDS

AST: List of Aboveground Storage Tanks
Source: Dept. of Building & Fire Safety
Telephone: 602-255-4964
Aboveground storage tanks that the Dept. of Building & Fire Safety have permitted.

Date of Government Version: 02/01/00
Database Release Frequency: Annually
Date of Last EDR Contact: 07/19/00
Date of Next Scheduled EDR Contact: 10/16/00

SPILLS: Hazardous Material Logbook
Source: Department of Environmental Quality
Telephone: 602-207-2202
ADEQ Emergency Response Unit. The ADEQ Emergency Response Unit documents chemical spills and incidents which are referred to the Unit. The logbook information for 1984-1986 consists of handwritten entries of the date, incident number and name of facility if known. Current logbooks are computerized and can be sorted by date, incident number, name, city (zip codes are not included), county, chemical and quantity.

Date of Government Version: 03/04/99
Database Release Frequency: Semi-Annually
Date of Last EDR Contact: 07/05/00
Date of Next Scheduled EDR Contact: 10/02/00

DOD: Department of Defense Sites
Source: Department of Environmental Quality
Telephone: 602-207-2202
These sites are federal facilities that are either being assessed for potential contamination, or have active remediation taking place on them.

Date of Government Version: 05/01/97
Database Release Frequency: Annually
Date of Last EDR Contact: 06/26/00
Date of Next Scheduled EDR Contact: 09/25/00

WWFAC: Waste Water Treatment Facilities
Source: Department of Environmental Quality
Telephone: 602-207-4623
Statewide list of waste water treatment facilities.

Date of Government Version: 09/16/98
Database Release Frequency: Semi-Annually
Date of Last EDR Contact: 05/30/00
Date of Next Scheduled EDR Contact: 08/28/00

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

AQUIFER: Waste Water Treatment Facilities
Source: Department of Environmental Quality
Telephone: 602-207-4623
Waste Water Treatment Facilities with APP (Aquifer Protection Permits.)

Date of Government Version: 02/04/00
Database Release Frequency: Semi-Annually
Date of Last EDR Contact: 06/26/00
Date of Next Scheduled EDR Contact: 09/25/00

DRY WELLS: Drywell Registration
Source: Department of Environmental Quality
Telephone: 602-207-2202
A drywell is a bored, drilled, or driven shaft or hole whose depth is greater than its width and is designed and constructed specifically for the disposal of storm water.

Date of Government Version: 06/01/00
Database Release Frequency: Semi-Annually
Date of Last EDR Contact: 05/12/00
Date of Next Scheduled EDR Contact: 08/07/00

AIRS: Arizona Airs Database
Source: Department of Environmental Quality
Telephone: 602-207-2344
Arizona major (has the potential to emit over 100 tons of criteria pollutant) and minor (below 100 tons) sources.

Date of Government Version: 05/01/00
Database Release Frequency: Semi-Annually
Date of Last EDR Contact: 05/19/00
Date of Next Scheduled EDR Contact: 08/07/00

EDR PROPRIETARY DATABASES

Former Manufactured Gas (Coal Gas) Sites: The existence and location of Coal Gas sites is provided exclusively to EDR by Real Property Scan, Inc. For a technical description of the types of hazards which may be found at such sites, contact your EDR customer service representative.

HISTORICAL AND OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

Oil/Gas Pipelines/Electrical Transmission Lines: This data was obtained by EDR from the USGS in 1994. It is referred to by USGS as GeoData Digital Line Graphs from 1:100,000-Scale Maps. It was extracted from the transportation category including some oil, but primarily gas pipelines and electrical transmission lines.

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 1999 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 1999 from the U.S. Fish and Wildlife Service.

GEOCHECK®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

FOREPAUGH MINERAL PIT
WEST HIGHWAY 60
WICKENBURG, AZ 85390

TARGET PROPERTY COORDINATES

Latitude (North):	33.944401 - 33° 56' 39.8"
Longitude (West):	112.936096 - 112° 56' 9.9"
Universal Tranverse Mercator:	Zone 12
UTM X (Meters):	321072.0
UTM Y (Meters):	3757485.2

EDR's GeoCheck Physical Setting Source Addendum has been developed to assist the environmental professional with the collection of physical setting source information in accordance with ASTM 1527-00, Section 7.2.3. Section 7.2.3 requires that a current USGS 7.5 Minute Topographic Map (or equivalent, such as the USGS Digital Elevation Model) be reviewed. It also requires that one or more additional physical setting sources be sought when (1) conditions have been identified in which hazardous substances or petroleum products are likely to migrate to or from the property, and (2) more information than is provided in the current USGS 7.5 Minute Topographic Map (or equivalent) is generally obtained, pursuant to local good commercial or customary practice, to assess the impact of migration of recognized environmental conditions in connection with the property. Such additional physical setting sources generally include information about the topographic, hydrologic, hydrogeologic, and geologic characteristics of a site, and wells in the area.

Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata. EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

USGS TOPOGRAPHIC MAP ASSOCIATED WITH THIS SITE

Target Property: 2433112-H8 OUTLAW HILL, AZ
Source: USGS 7.5 min quad index

GENERAL TOPOGRAPHIC GRADIENT AT TARGET PROPERTY

Target Property: General NW

Source: General Topographic Gradient has been determined from the USGS 1 Degree Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Target Property County	FEMA Q3 Flood Data Electronic Coverage
MARICOPA, AZ	YES

Flood Plain Panel at Target Property: 04013C0225D / CWNP
Additional Panels in search area: Not Reported

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Coverage
NOT AVAILABLE	NO

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Site-Specific Hydrogeological Data*:

Search Radius:	2.0 miles
Status:	Not found

AQUIFLOW®

Search Radius: 2.000 Miles.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

Geologic Code:	Xm
Era:	Precambrian
System:	Precambrian
Series:	Orthogneiss and paragneiss

GEOLOGIC AGE IDENTIFICATION

Category: Metamorphic Rocks

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps. The following information is based on Soil Conservation Service STATSGO data.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Surface Texture: loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained. Soils have intermediate water holding capacity. Depth to water table is more than 6 feet.

Hydric Status: Soil does not meet the requirements for a hydric soil.

Corrosion Potential - Uncoated Steel: HIGH

Depth to Bedrock Min: > 60 inches

Depth to Bedrock Max: > 60 inches

Soil Layer Information

	Boundary			Classification		
Layer	**Upper**	**Lower**	**Soil Texture Class**	**AASHTO Group**	**Unified Soil**	**Permeability Rate (in/hr)**
1	0 inches	11 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 0.60 Min: 0.20
2	11 inches	55 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 0.60 Min: 0.20
3	55 inches	60 inches	gravelly - loamy coarse sand	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COURSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 20.00 Min: 6.00
4	60 inches	70 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay. FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 2.00 Min: 0.60

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

OTHER SOIL TYPES IN AREA

Based on Soil Conservation Service STATSGO data, the following additional subordinant soil types may appear within the general area of target property.

Soil Surface Textures: clay

Surficial Soil Types: clay

Shallow Soil Types: No Other Soil Types

Deeper Soil Types: clay
sandy clay

ADDITIONAL ENVIRONMENTAL RECORD SOURCES

According to ASTM E 1527-00, Section 7.2.2, "one or more additional state or local sources of environmental records may be checked, in the discretion of the environmental professional, to enhance and supplement federal and state sources... Factors to consider in determining which local or additional state records, if any, should be checked include (1) whether they are reasonably ascertainable, (2) whether they are sufficiently useful, accurate, and complete in light of the objective of the records review (see 7.1.1), and (3) whether they are obtained, pursuant to local, good commercial or customary practice." One of the record sources listed in Section 7.2.2 is water well information. Water well information can be used to assist the environmental professional in assessing sources that may impact groundwater flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
1	335648112555001	1/4 - 1/2 Mile ENE

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

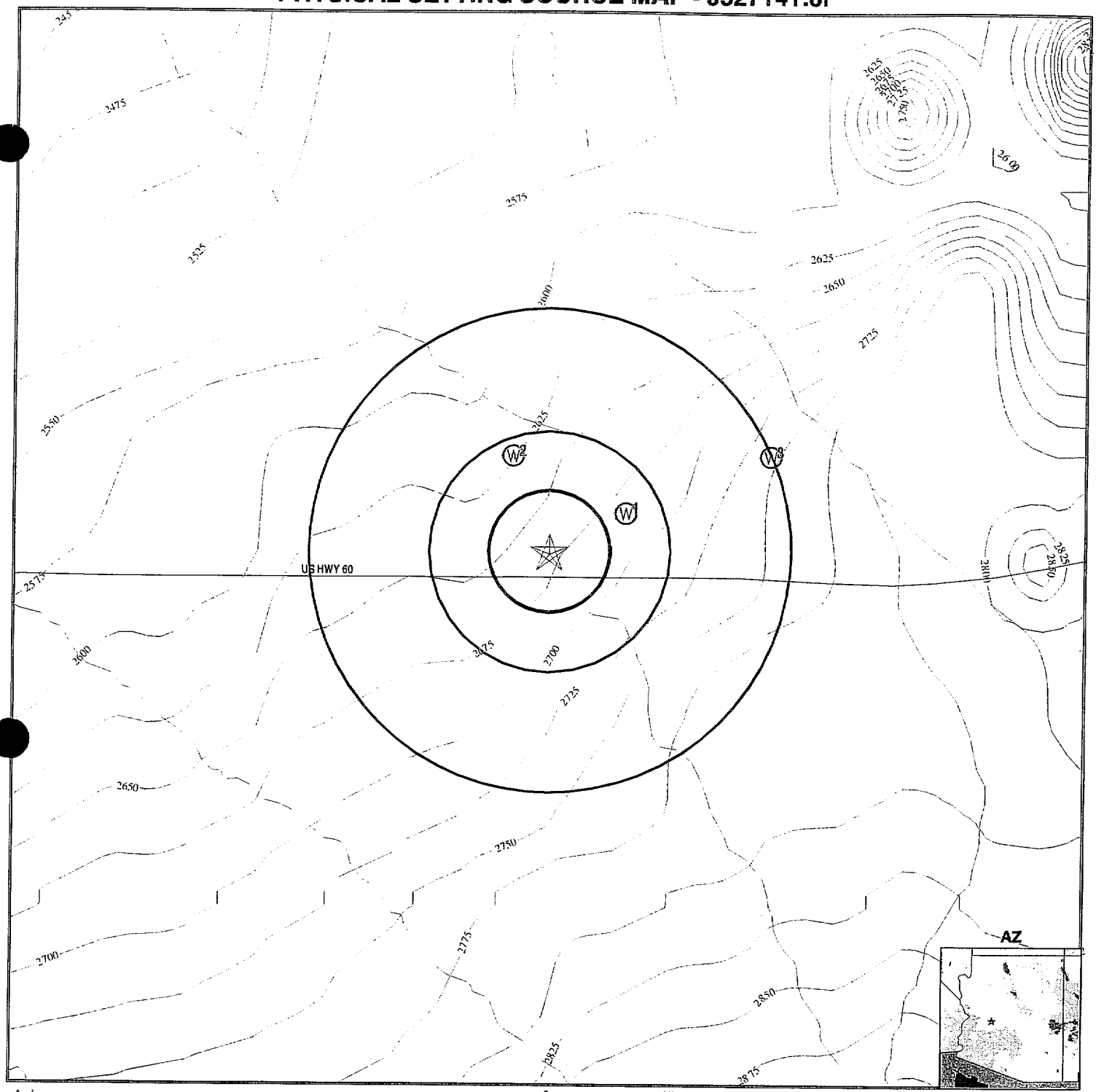
MAP ID	WELL ID	LOCATION FROM TP

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
2	520430	1/4 - 1/2 Mile NNW
3	520428	1/2 - 1 Mile ENE

PHYSICAL SETTING SOURCE MAP - 0527141.6r



- Major Roads
- Contour Lines
- Water Wells
- Public Water Supply Wells
- Groundwater Flow Direction
- GI Indeterminate Groundwater Flow at Location
- GV Groundwater Flow Varies at Location
- Cluster of Multiple Icons
- Earthquake epicenter, Richter 5 or greater
- HD Closest Hydrogeological Data

TARGET PROPERTY:	Forepaugh Mineral Pit	CUSTOMER:	Brown & Caldwell Consultants
ADDRESS:	West Highway 60	CONTACT:	Janice Petticrew
CITY/STATE/ZIP:	Wickenburg AZ 85390	INQUIRY #:	0527141.6r
LAT/LONG:	33.9444 / 112.9361	DATE:	August 10, 2000 11:51 am

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

	Database	EDR ID Number
1 **ENE** **1/4 - 1/2 Mile** **Higher**	**FED USGS**	**335648112555001**

BASIC WELL DATA

Site Type:	Single well, other than collector or Ranney type		
Year Constructed:	Not Reported	County:	Maricopa
Altitude:	2575.00 ft.	State:	Arizona
Well Depth:	Not Reported	Topographic Setting:	Not Reported
Depth to Water Table:	591.80 ft.	Prim. Use of Site:	Withdrawal of water
Date Measured:	01171978	Prim. Use of Water:	Unused

---

2 **NNW** **1/4 - 1/2 Mile** **Lower**		**AZ WELLS**	**520430**

Registration Num:	520430	Map ID:	2
CADASTRAL LOCATION OF WELL:			
State Quadrant:	B	Township:	07
1/2 Township:	-	Range:	07
1/2 Range:	Not Reported	Section:	13
1/4 Section:	Not Reported	1/4,1/4 Section:	Not Reported
1/4,1/4,1/4 Section:	Not Reported	Location Accuracy:	Unverified
File Type:	New Wells		
AMA or INA Basin:	Not Within AMA or INA Basin	AMA/INA Sub-Basin:	Not In AMA or INA Sub-Basin
Well Type:	Exploration Exploration wells can have more than one well		
River Watershed:	Upper Gila River	County:	Maricopa
Owner Type:	Federal	Owner:	Bureau of Land Management
Water Use	None	Well Use	Mineral Exploration
Drill Permit Issued:	Mar 01, 1988	Registration Num:	488
Intended Pump Cap.:	Not Reported	Change in Owner:	No
Drillers Log Status:	Completed (when Well Drillers Completion Report is entered)		
Completion Report Stat:	No Completion Report is needed (Example: abandoned exploation wells)		
Poor Quality Prmt Num:	Not Reported	Poor Qual Prmt Status:	6 HOLES
Owner:	SAGA EXPLORATION CO		
In Care of:	Not Reported PO BOX 6479 RENO,NV 89513		
Well Depth (Ft):	70	Casing Diameter (In):	Not Reported
Casing Depth (Ft):	Not Reported	Casing Finish:	Not Reported
Pump Capacity (GPM):	Not Reported	Water Level (Ft):	Not Reported
Well Completed:	May 12, 1988	Acres Irrigated:	0.00
Pump Capacity Test:	Not Reported	Yield Method:	Not Reported
Pump Type:	Not Reported	Drawdown (Ft):	Not Reported
Pump Power Type:	Not Reported		
Point of Use 1:	Not Reported	Point of Use 2:	Not Reported

---

3 **ENE** **1/2 - 1 Mile** **Higher**		**AZ WELLS**	**520428**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Registration Num:	520428	Map ID:	3
CADASTRAL LOCATION OF WELL:			
State Quadrant:	B	Township:	07
1/2 Township:	-	Range:	06
1/2 Range:	Not Reported	Section:	18
1/4 Section:	Not Reported	1/4,1/4 Section:	Not Reported
1/4,1/4,1/4 Section:	Not Reported	Location Accuracy:	Unverified
File Type:	New Wells		
AMA or INA Basin:	Not Within AMA or INA Basin	AMA/INA Sub-Basin:	Not In AMA or INA Sub-Basin
Well Type:	Exploration		
	Exploration wells can have more than one well		
River Watershed:	Upper Gila River	County:	Maricopa
Owner Type:	State Agentcy	Owner:	Not Reported
Water Use	None	Well Use	Mineral Exploration
Drill Permit Issued:	Mar 01, 1988	Registration Num:	488
Intended Pump Cap.:	Not Reported	Change in Owner:	No
Drillers Log Status:	Completed (when Well Drillers Completion Report is entered)		
Completion Report Stat:	No Completion Report is needed (Example: abandoned exploation wells)		
Poor Quality Prmt Num:	Not Reported	Poor Qual Prmt Status:	3-5 HOLES
Owner:	SAGA EXPLORATION CO		
In Care of:	Not Reported		
	PO BOX 6479		
	RENO,NV 89513		
Well Depth (Ft):	250	Casing Diameter (In):	Not Reported
Casing Depth (Ft):	Not Reported	Casing Finish:	Not Reported
Pump Capacity (GPM):	Not Reported	Water Level (Ft):	Not Reported
Well Completed:	May 12, 1988	Acres Irrigated:	0.00
Pump Capacity Test:	Not Reported	Yield Method:	Not Reported
Pump Type:	Not Reported	Drawdown (Ft):	Not Reported
Pump Power Type:	Not Reported		
Point of Use 1:	Not Reported	Point of Use 2:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

Federal EPA Radon Zone for MARICOPA County: 2

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

MARICOPA COUNTY, AZ

Number of sites tested: 695

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	1.697 pCi/L	93%	7%	0%
Living Area - 2nd Floor	3.640 pCi/L	80%	20%	0%
Basement	2.242 pCi/L	79%	21%	0%

PHYSICAL SETTING SOURCE RECORDS SEARCHED

HYDROLOGIC INFORMATION

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 1999 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 1999 from the U.S. Fish and Wildlife Service.

HYDROGEOLOGIC INFORMATION

AQUIFLOW^R Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the national Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

ADDITIONAL ENVIRONMENTAL RECORD SOURCES

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-260-2805
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-260-2805
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: In November 1971 the United States Geological Survey (USGS) implemented a national water resource information tracking system. This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on more than 900,000 wells, springs, and other sources of groundwater.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

STATE RECORDS

Arizona Well Registration Database
Source: Department of Water Resources
Telephone: 602-542-1586
Contains information provided to ADWR's Operations Division by well drillers and/or owners.

RADON

Area Radon Information: The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones: Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

APPENDIX C

ENVIRONMENTAL DATA RESOURCES, INC., EDR-HISTORICAL TOPOGRAHIC MAP REPORT

The EDR-Historical Topographic Map Report

Forepaugh Mineral Pit
West Highway 60
Wickenburg, AZ 85390

August 10, 2000

Inquiry Number: 527141-3

Environmental Data Resources, Inc.
an edr company

The Source For Environmental Risk Management Data

3530 Post Road
Southport, Connecticut 06490

Nationwide Customer Service

Telephone: 1-800-352-0050
Fax: 1-800-231-6802

Environmental Data Resources, Inc.
Historical Topographic Map Report

Environmental Data Resources, Inc.'s (EDR) Historical Topographic Map Report is designed to assist professionals in evaluating potential liability on a target property, and its surrounding area, resulting from past activities. ASTM E 1527-00, Section 7.3 on Historical Use Information, identifies the prior use requirements for a Phase I environmental site assessment. The ASTM standard requires a review of *reasonably ascertainable standard historical sources. Reasonably ascertainable is defined as information that is publicly available, obtainable from a source with reasonable time and cost constraints, and practically reviewable.*

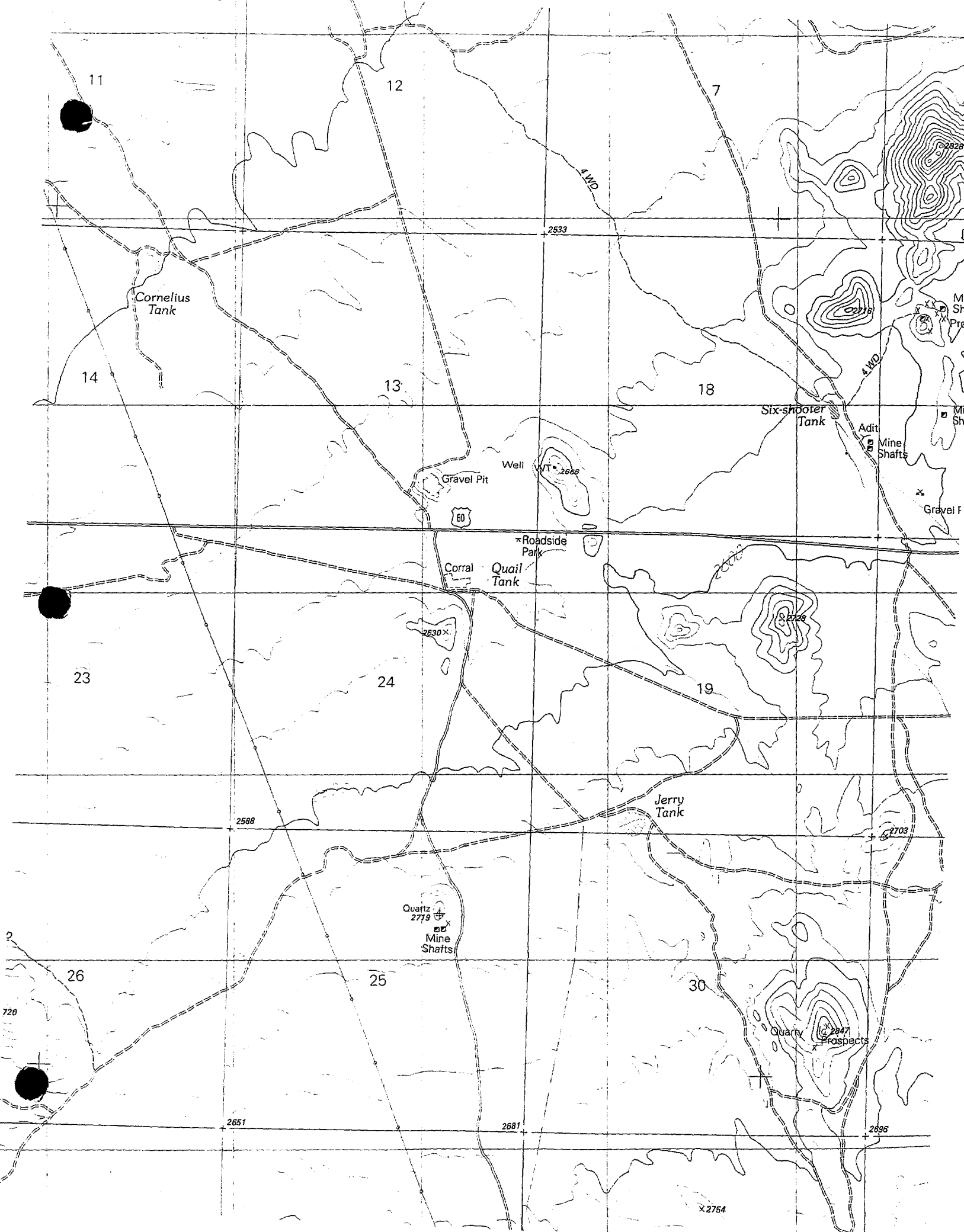
To meet the prior use requirements of ASTM E 1527-00, Section 7.3.2, the following *standard historical sources* may be used: aerial photographs, city directories, fire insurance maps, topographic maps, property tax files, land title records (although these cannot be the sole historical source consulted), building department records, or zoning/and use records. ASTM E 1527-00 requires *"All obvious uses of the property shall be identified from the present, back to the property's obvious first developed use, or back to 1940, whichever is earlier. This task requires reviewing only as many of the standard historical sources as are necessary, and that are reasonably ascertainable and likely to be useful."* (ASTM E 1527-00, Section 7.3.2 page 11.)

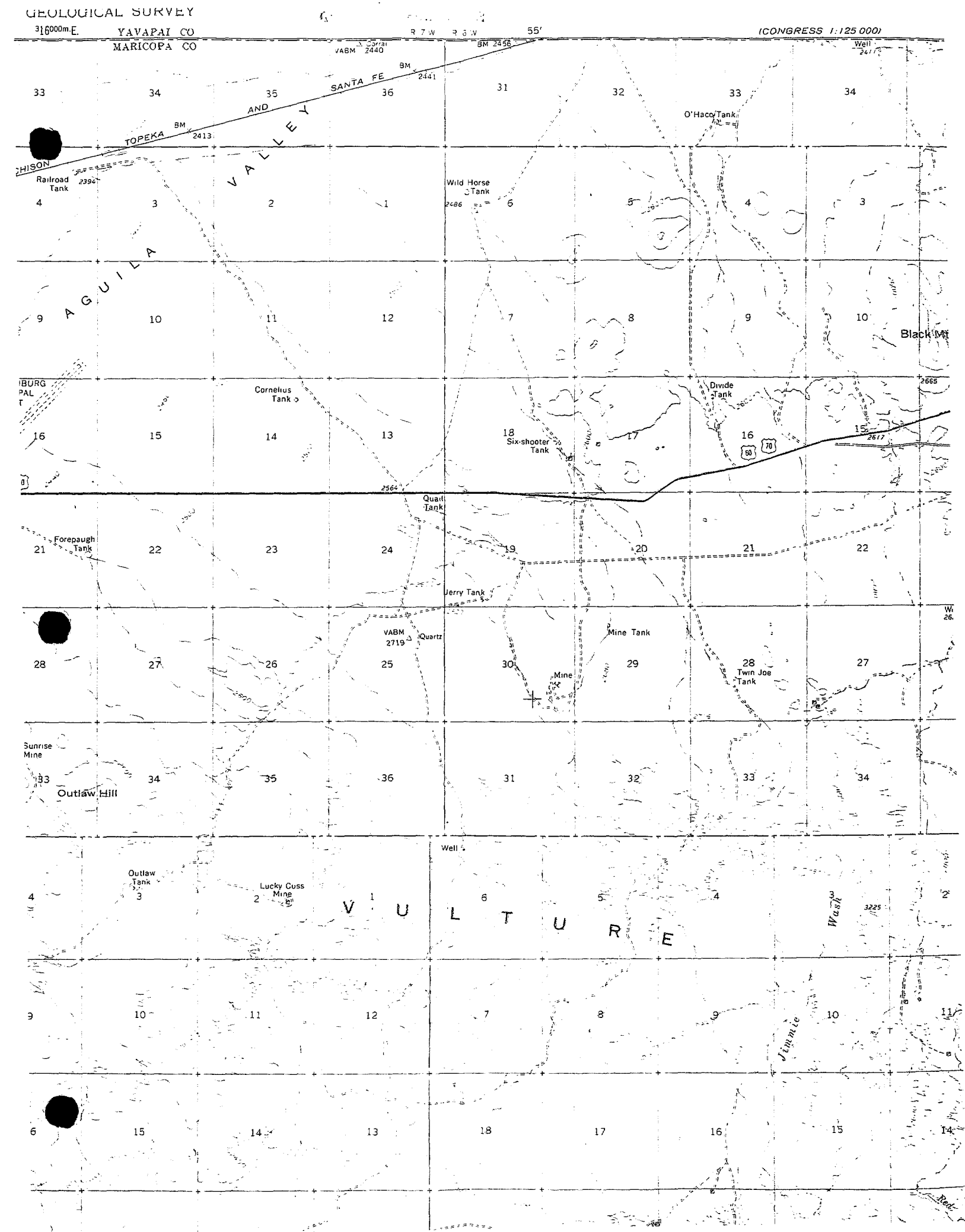
EDR's Historical Topographic Map Report includes a search of available public and private color historical topographic map collections.

Topographic Maps

A topographic map (topo) is a color coded line-and-symbol representation of natural and selected artificial features plotted to a scale. Topos show the shape, elevation, and development of the terrain in precise detail by using contour lines and color coded symbols. Many features are shown by lines that may be straight, curved, solid, dashed, dotted, or in any combination. The colors of the lines usually indicate similar classes of information. For example, topographic contours (brown); lakes, streams, irrigation ditches, etc. (blue); land grids and important roads (red); secondary roads and trails, railroads, boundaries, etc. (black); and features that have been updated using aerial photography, but not field verified, such as disturbed land areas (e.g., gravel pits) and newly developed water bodies (purple).

For more than a century, the USGS has been creating and revising topographic maps for the entire country at a variety of scales. There are about 60,000 U.S. Geological Survey (USGS) produced topo maps covering the United States. Each map covers a specific quadrangle (quad) defined as a four-sided area bounded by latitude and longitude. Historical topographic maps are a valuable historical resource for documenting the prior use of a property and its surrounding area, and due to their frequent availability can be particularly helpful when other standard historical sources (such as city directories, fire insurance maps, or aerial photographs) are not reasonably ascertainable.


11
12
7
14
13
18
23
24
19
26
25
30
Cornelius Tank
4WD
2533
2928
2716
Six-shooter Tank
Adit
Mine Shafts
Well
WT 2656
Gravel Pit
60
Roadside Park
Corral
Quail Tank
2630
2729
Jerry Tank
2588
2703
Quartz 2779
Mine Shafts
Quarry
2847
Prospects
2651
2681
2696
2754

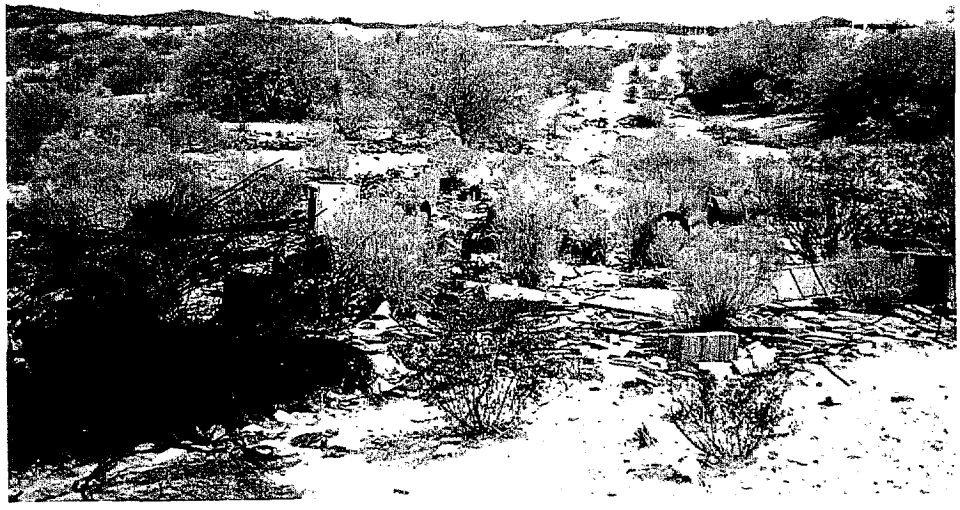

GEOLOGICAL SURVEY
316000m.E.
YAVAPAI CO
MARICOPA CO
R 7 W
R 6 W
55'
(CONGRESS 1:125 000)
VABM 2440
BM 2456
BM 2441
BM 2413
SANTA FE
AND
TOPEKA
CHISON
Railroad Tank 2394
AGUILA VALLEY
Wild Horse Tank 2486
O'Haco Tank
Well 2417
Black Mt
Cornelius Tank
Divide Tank 2665
Six-shooter Tank
2617
2564
Quail Tank
Forepaugh Tank
Jerry Tank
VABM 2719
Quartz
Mine Tank
Mine
Twin Joe Tank
Sunrise Mine
Outlaw Hill
Well
Outlaw Tank
Lucky Cuss Mine
VULTURE
3225
Wash
Jamie
Red

APPENDIX D

SITE PHOTOGRAPHS

Photograph No. 1

View looking east at the dump area on the Site.

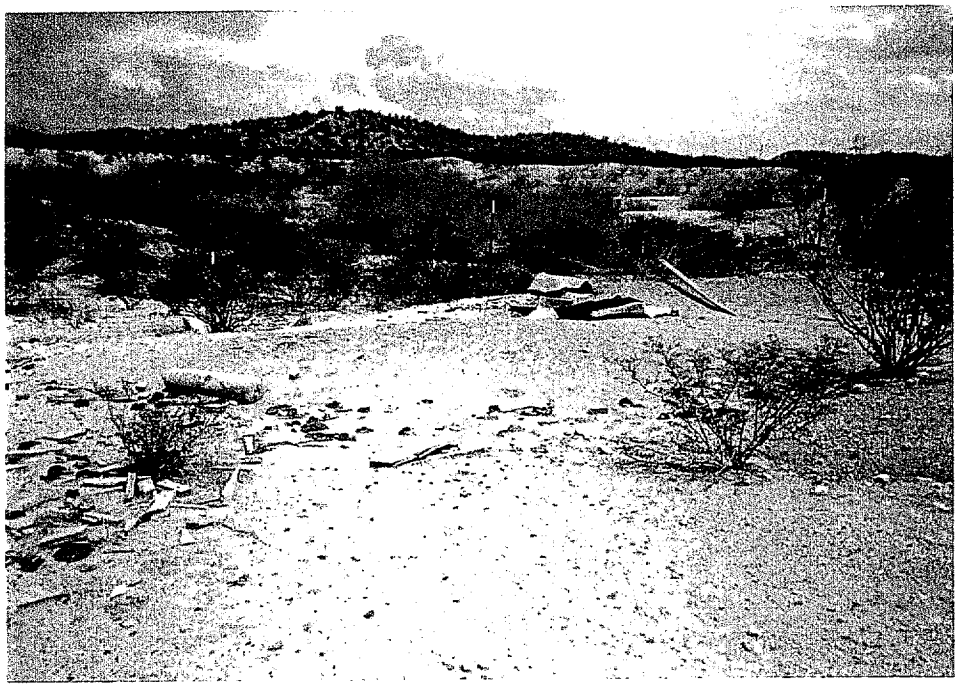


Photograph No. 2

View of the debris and trash in the dump area on the Site.

Photograph No. 3

View of the former compressed gas cylinder located near the south-central portion of the Site. Note the abandoned trailer in the upper right corner background of the photograph.

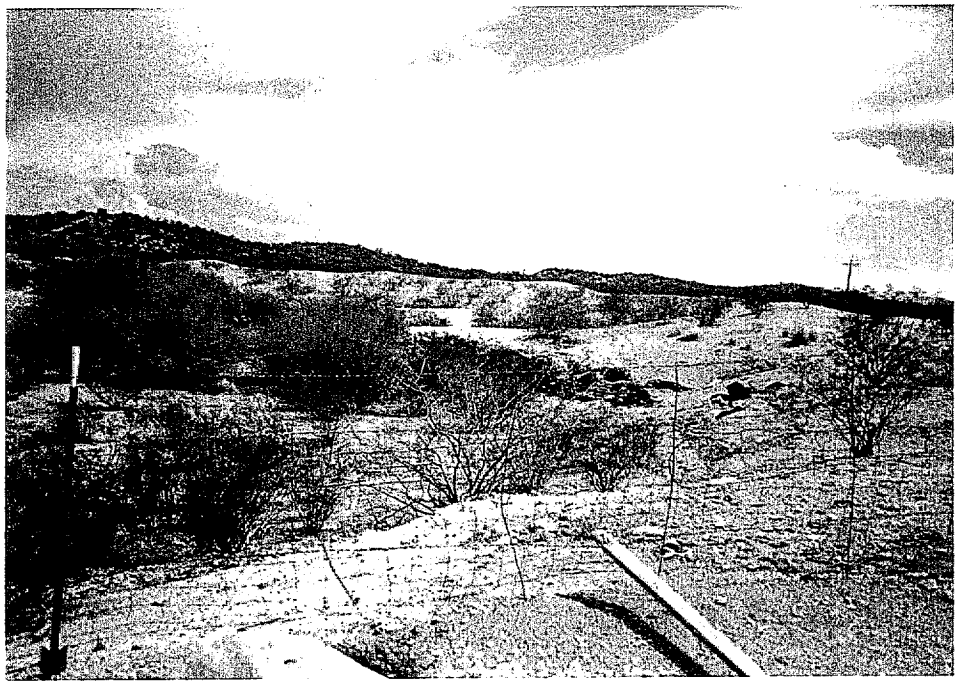


Photograph No. 4

View of the mature yucca plants located near the central portion of the Site.

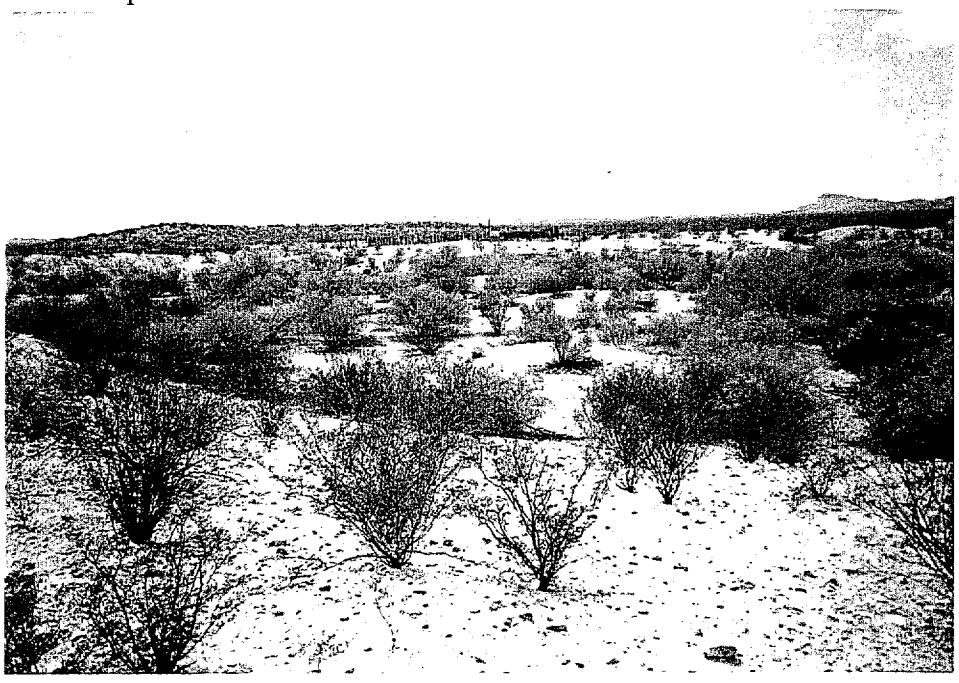
Photograph No. 5

View looking toward the east from the west side of the pit. Note the abandoned trailer in the center background of the photograph.



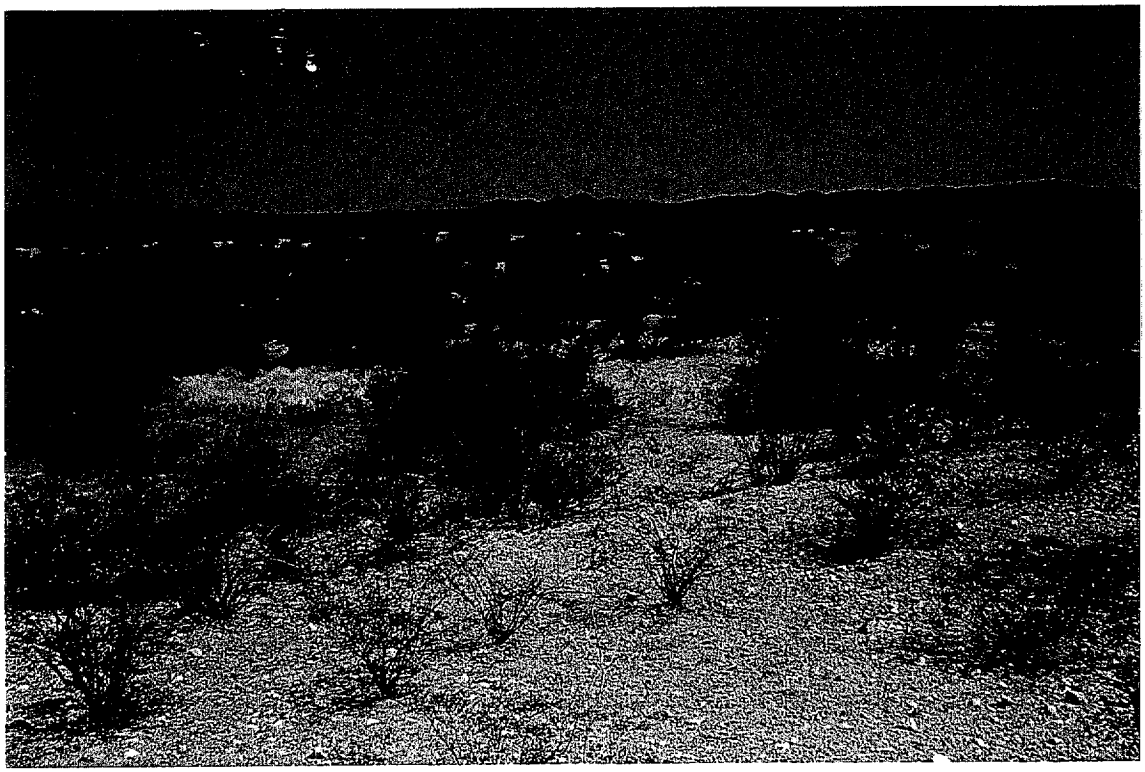
Photograph No. 6

View from the northeast corner of the pit looking southwest at the corral located near the south central portion of the Site.



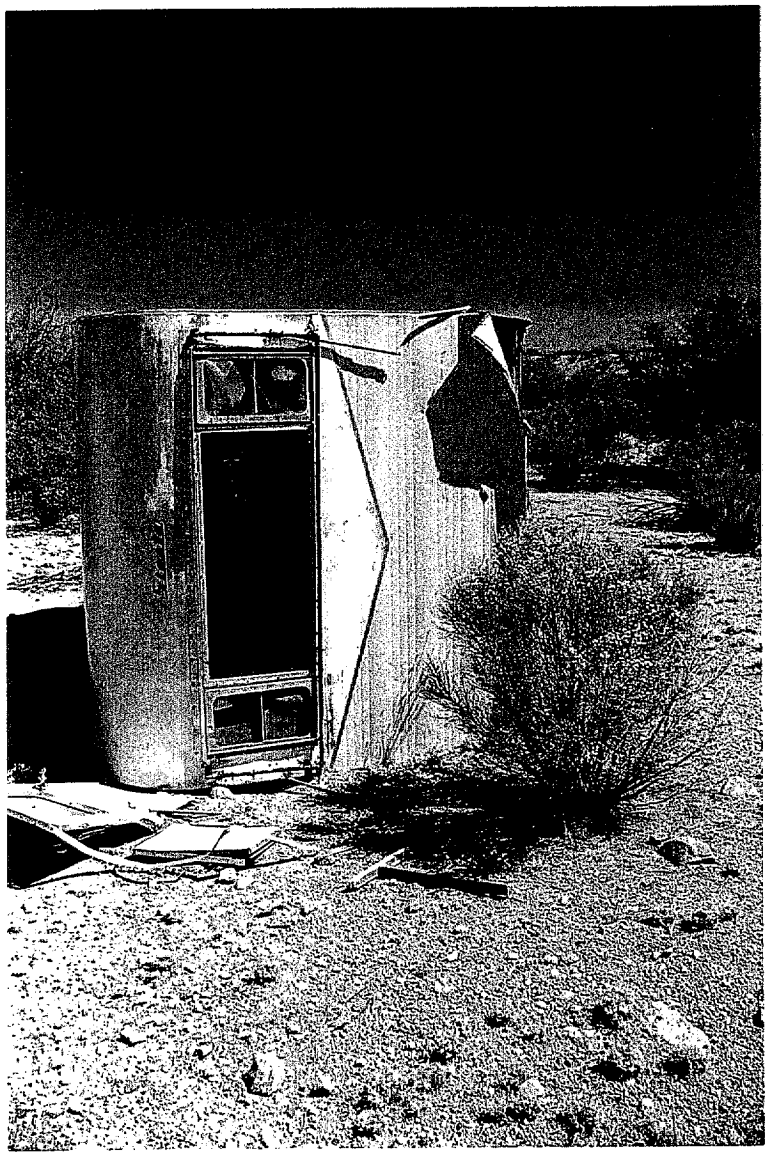
Photograph No. 7

View looking toward the east across the Site from the western edge of the pit.



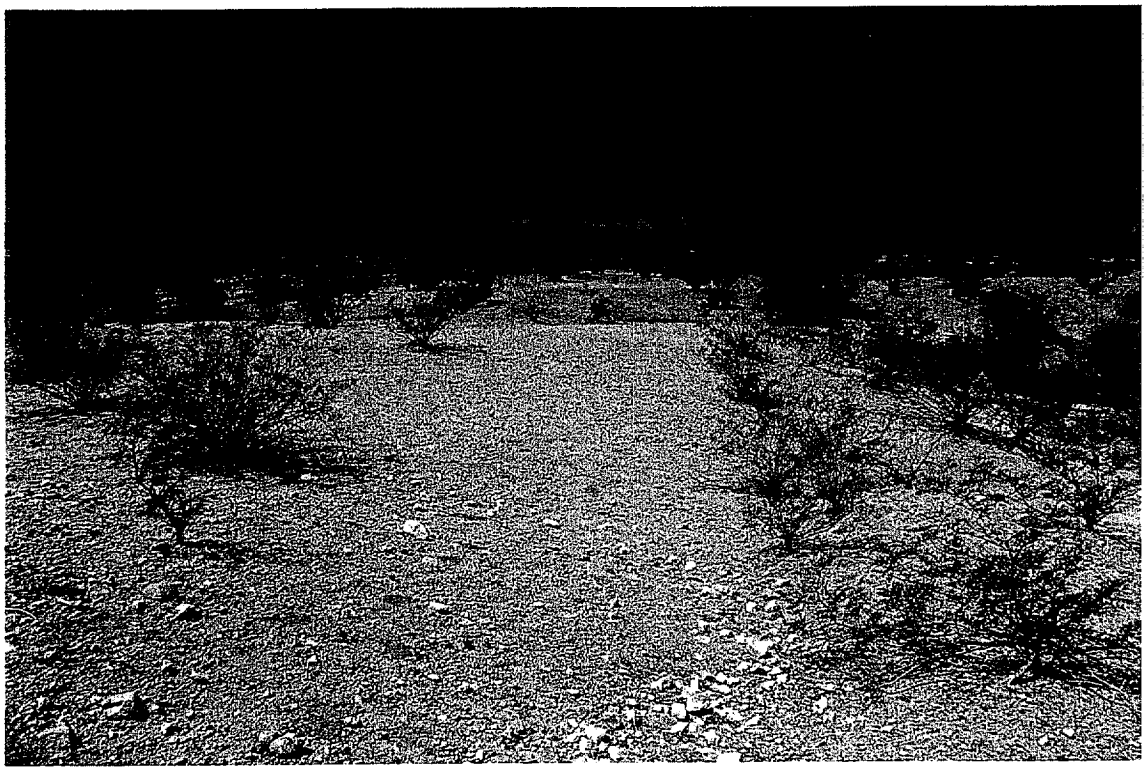
Photograph No. 8

Photograph showing the abandoned travel trailer in the pit at the Site.



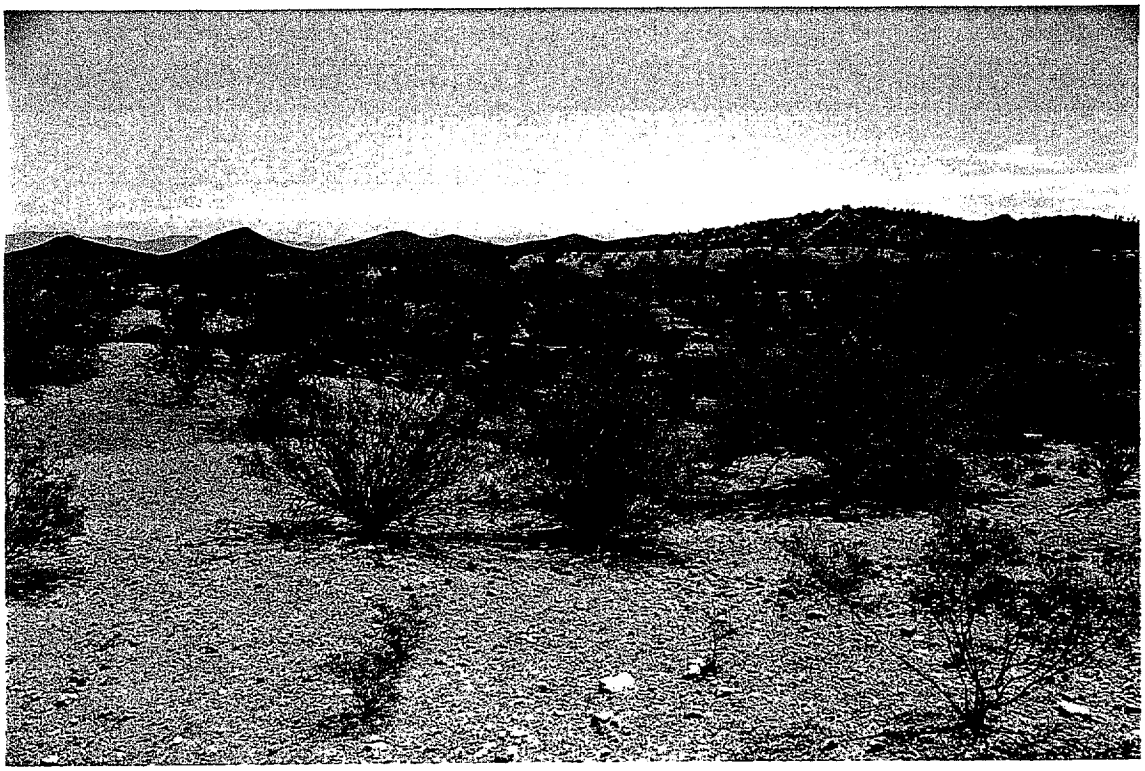
Photograph No. 9

View looking southwest from the northeast side of the pit. Note the wood livestock corral in the background.



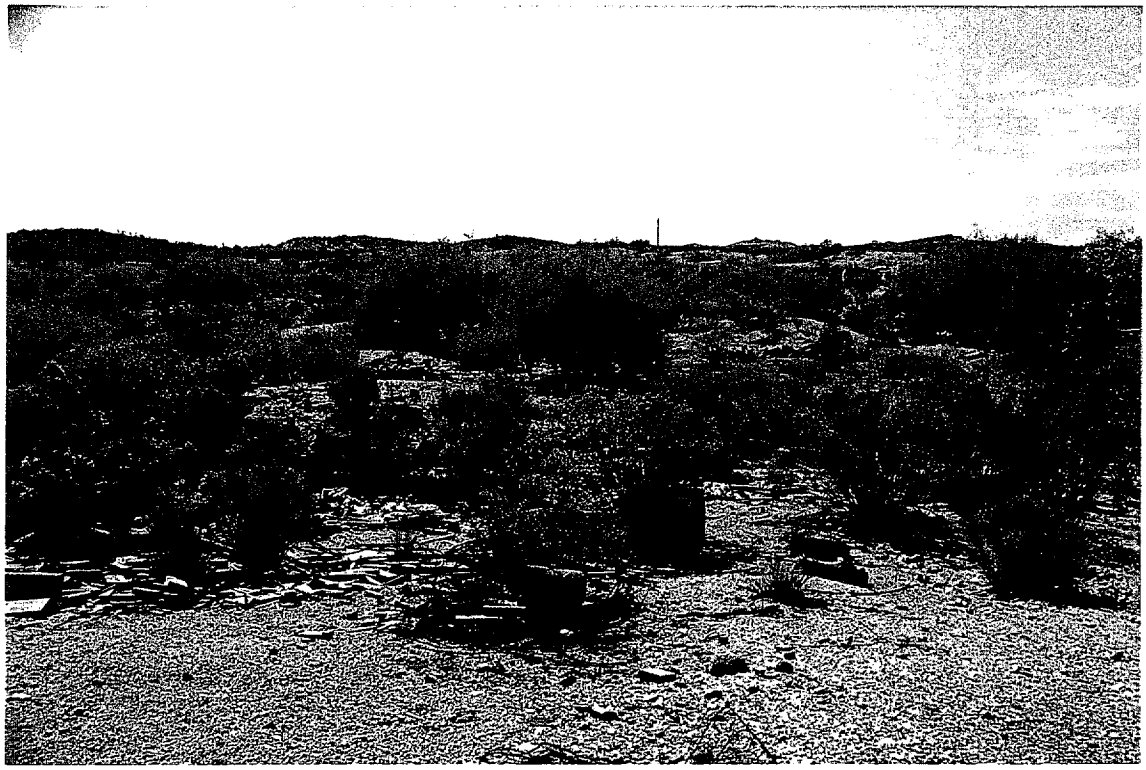
Photograph No. 10

View looking toward the east to southeast across the Site from the western side of the pit. Note the abandoned water tank on the top of the hill in the background. The well on the adjacent property is at the base of the hill below the water tank.



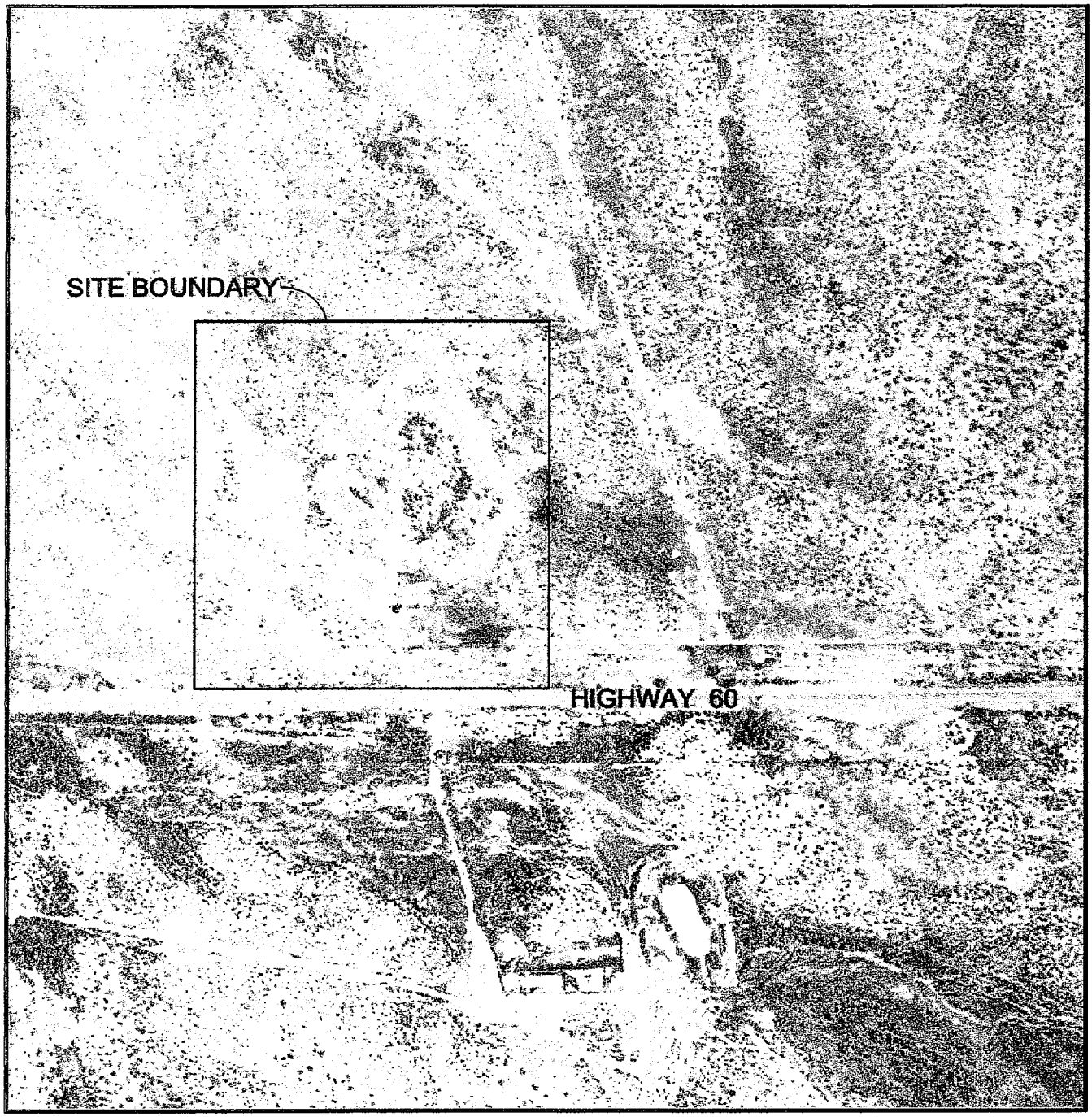
Photograph No. 11

View toward the south from the north edge of the pit showing the dump area on the Site.

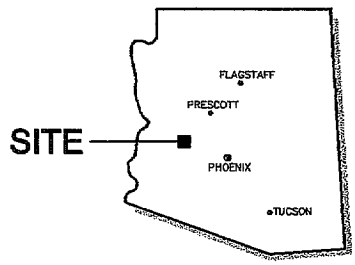


APPENDIX E

AERIAL PHOTOGRAPH



SOURCE: ARIZONA DEPARTMENT OF TRANSPORTATION
PHOTOGRAMMETRY AND MAPPING SERVICES.
AERIAL PHOTOGRAPH DATED MARCH 4, 1998.
1"=2000' No. 3548, 3-22



ARIZONA

BROWN AND CALDWELL
Phoenix, Arizona

P:\Cad\ES\MARICOPA\9422\F9422001.dwg (1=1) 09-11-00 JCollier

APPENDIX F

DEFINITIONS AND DESCRIPTIONS OF TERMS SPECIFIC TO THE ASTM STANDARD

DEFINITIONS AND DESCRIPTIONS OF TERMS SPECIFIC TO THE ASTM STANDARD

Actual knowledge - the knowledge actually possessed by an individual who is a real person, rather than an entity. Actual knowledge is to be distinguished from constructive knowledge, which is knowledge imputed to an individual or entity.

Adjoining properties - any real property or properties the border of which is contiguous or partially contiguous with that of the property, or that would be contiguous or partially contiguous with that of the property but for a street, road, or other public thoroughfare separating them.

Aerial photographs - photographs taken from an airplane or helicopter (from a low enough altitude to allow identification of development and activities) of areas encompassing the property.

Appropriate inquiry - that inquiry constituting "all appropriate inquiry into the previous ownership and uses of the property consistent with good commercial or customary practice" as defined in CERCLA, 42 USC § 9601(35)B, that will give a party to a *commercial real estate* transaction the *innocent landowner defense* to CERCLA liability (42 USC § 9601(A) and (B) and § 9607(b)(3)), assuming compliance with other elements of the defense.

Approximate minimum search distance (msd) - the area for which records must be obtained and reviewed pursuant to Section 7 of ASTM E 1527-97, subject to the limitations provided in that section. This may include areas outside the property and shall be measured from the nearest *property* boundary. This term is used in lieu of radius to include irregularly shaped properties.

Asbestos - six naturally occurring fibrous minerals in certain types of rock formations. Of the six, the minerals chrysotile, amosite, and crocidolite have been most used in building products. When mined and processed, asbestos is typically separated into very thin fibers. Because asbestos is strong, incombustible, and corrosion-resistant, asbestos was used in many commercial products beginning early in this century and peaking in the period from World War II into the 1970s. When inhaled in sufficient quantities, asbestos fibers can cause serious health problems.

Asbestos-containing material (ACM) - any material or product that contains more than 1 percent asbestos.

Building department records - those records of the local government in which the property is located indicating permission of the local government to construct, alter, or demolish improvements on the property.

Commercial real estate - any real property except a dwelling or property with no more than four dwelling units exclusively for residential use (except that a dwelling or property with no more than four dwelling units exclusively for residential use is included in this term when it has a commercial function, as in the building of such dwellings for profit). This term includes but is not limited to undeveloped real property and real property used for industrial, retail, office, agricultural, other commercial, medical, or educational purposes; properties used for residential purposes that has more than four residential dwelling units; and property with no more than four dwelling units for residential use when it has a commercial function, as in the building of such dwellings for profit.

Commercial real estate transaction - a transfer of title to or possession of real property or receipt of a security interest in real property, except that it does not include transfer of title to or possession of real property or the receipt of a security interest in real property with respect to an individual dwelling or building containing fewer than five dwelling units, nor does it include the purchase of a lot or lots to construct a dwelling for occupancy by a purchaser, but a commercial real estate transaction does include real property purchased or leased by persons or entities in the business of building or developing dwelling units.

Comprehensive Environmental Response, Compensation and Liability Information System **(CERCLIS)** - the list of sites compiled by EPA that EPA has investigated or is currently investigating for potential hazardous substance contamination for possible inclusion on the National Priorities List.

Construction debris - concrete, brick, asphalt, and other such building materials discarded in the construction of a building or other improvement to property.

Contaminated public wells - public wells used for drinking water that have been designated by a government entity as contaminated by toxic substances (e.g., chlorinated solvents), or as having water unsafe to drink without treatment.

Demolition debris - concrete, brick, asphalt, and other such building materials discarded in the demolition of a building or other improvement to property.

Drum - a container (typically, but not necessarily, holding 55 gallons (208 L) of liquid) that may be used to store *hazardous substances* or *petroleum products.*

Dry wells - underground areas where soil has been removed and replaced with pea gravel, coarse sand, or large rocks. Dry wells are used for drainage, to control storm runoff, for the collection of spilled liquids (intentional and non-intentional) and wastewater disposal (often illegal).

Due diligence - the process of inquiring into the environmental characteristics of a parcel of *commercial real estate* or other conditions, usually in connection with a commercial real estate transaction. The degree and kind of due diligence vary for different properties and differing purposes.

Dwelling - structure or portion thereof used for residential habitation.

Environmental audit - the investigative process to determine if the operations of an existing facility are in compliance with applicable environmental laws and regulations. This term should not be used to describe Practice E 1528 (Transaction Screen) or Practice E 1527 (Phase I Environmental Site Assessment), although an environmental audit may include an *environmental site assessment* or, if prior audits are available, may be part of an environmental site assessment.

Environmental lien - a charge, security, or encumbrance upon title to a *property* to secure the payment of a cost, damage, debt, obligation, or duty arising out of response actions, cleanup, or other remediation of *hazardous substances* or *petroleum products* upon a *property*, including (but not limited to) liens imposed pursuant to CERCLA 42 USC § 9607(1) and similar state or local laws.

Environmental professional - a person possessing sufficient training and experience necessary to conduct a *site reconnaissance, interviews,* and other activities in accordance with ASTM E 1527 Practice, and from the information generated by such activities, having the ability to develop conclusions regarding *recognized environmental conditions* in connection with the *property* in question. An individual's status as an environmental professional may be limited to the type of assessment to be performed or to specific segments of the assessment for which the professional is responsible. The person may be an independent contractor or an employee of the *user.*

Environmental site assessment (ESA) - the process by which a person or entity seeks to determine if a particular parcel of real *property* (including improvements) is subject to *recognized environmental conditions.* At the option of the user, an environmental site assessment may include more inquiry than that constituting *appropriate inquiry* or, if the user is not concerned about qualifying for the *innocent landowner defense,* less inquiry than that constituting *appropriate inquiry.* An environmental site assessment is both different from and less rigorous than an *environmental audit.*

ERNS list - EPA's Emergency Response Notification System list of reported CERCLA hazardous substance releases or spills in quantities greater than the reportable quantity, as maintained at the National Response Center. Notification requirements for such releases or spills are codified in 40 CFR Parts 302 and 355.

Federal Register **(FR)** - publication of the United States government published daily (except for federal holidays and weekends), containing all proposed and final regulations and some other activities of the federal government. When regulations become final, they are included in the Code of Federal Regulations (CFR), as well as published in the Federal Register.

Fill dirt - dirt, soil, sand, or other earth, that is obtained off-site, that is used to fill holes or depressions, create mounds, or otherwise artificially change the grade or elevation of real property. It does not include material that is used in limited quantities for normal landscaping activities.

Fire insurance maps - maps produced for private fire insurance companies that indicate uses of properties at specified dates and that encompass the property.

Hazardous substance - A substance defined as a hazardous substance pursuant to CERCLA 42 USC § 9601(1), as interpreted by EPA regulations and the courts: "(A) any substance designated pursuant to section 1321(b)(2)(A) of Title 33, (B) any element, compound, mixture, solution, or substance designated pursuant to section 9602 of this title, (C) any hazardous waste having the characteristics identified under or listed pursuant to section 3001 of the Solid Waste Disposal Act (42 USC §6921) (but not including any waste the regulation of which under the Solid Waste Disposal Act (42 USC §6901 *et seq.*) has been suspended by Act of Congress), (D) any toxic pollutant listed under section 1317(a) of Title 33, (E) any hazardous air pollutant listed under section 112 of the Clean Air Act (42 USC § 7412), and (F) any imminently hazardous chemical substance or mixture with respect to which the Administrator of the EPA has taken action pursuant to section 2606 of Title 15. The term does not include petroleum, including crude oil or any fraction thereof which is not otherwise specifically listed or designated as a hazardous substance under subparagraphs (A) through (F) of this paragraph, and the term does not include natural gas, natural gas liquids, liquefied natural gas, or synthetic gas usable for fuel (or mixtures of natural gas and such synthetic gas)."

Hazardous waste - any hazardous waste having the characteristics identified under or listed pursuant to section 3001 of the Solid Waste Disposal Act (42 USC § 6921) (but not including any waste the regulation of which under the Solid Waste Disposal Act (42 USC §6901 *et seq.*) has been suspended by Act of Congress). The Solid Waste Disposal Act of 1980 amended RCRA. RCRA defines a hazardous waste, in 42 USC § 6903, as: "a solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may—(A) cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (B) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed."

Hazardous waste/contaminated sites - sites on which a release has occurred, or is suspected to have occurred, or is suspected to have occurred, of any *hazardous substance, hazardous waste, or petroleum products*, and that release or suspected release has been reported to a government entity.

Innocent landowner defense - that defense to CERCLA liability provided in 42 USC § 9601(35) and § 9607(b)(3). One of the requirements to qualify for this defense is that the party make "all appropriate inquiry into the previous ownership and uses of the property consistent with good commercial or customary practice." There are additional requirements to qualify for this defense. See Appendix XI of ASTM Standard E 1527 or E 1528.

Interviews - those portions of ASTM Practice E 1527 that address questions to be asked of *owners* and *occupants* of the *property* and questions to be asked of local government officials.

Key site manager - the person identified by the *owner* of a *property* as having good knowledge of the uses and physical characteristics of the property.

Landfill - a place, location, tract of land, area or premises used for the disposal of solid wastes as defined by state solid waste regulations. The term is synonymous with the term *solid waste disposal site* and is also known as a garbage dump, trash dump, or similar term.

Local government agencies - those agencies of municipal or county government having jurisdiction over the *property*. Municipal and county government agencies include but are not limited to cities, parishes, townships, and similar entities.

Local street directories - directories published by private (or sometimes government) sources that show ownership, occupancy, and/or use of sites by reference to street addresses.

LUST sites - state lists of leaking underground storage tank sites. Section 9003 (h) of Subtitle I of RCRA gives EPA and states, under cooperative agreements with EPA, authority to clean up releases from UST systems or require owners and operators to do so.

Major occupants - those tenants, subtenants, or other persons or entities each of which uses at least 40 percent of the leasable area of the *property* or any anchor tenant when the *property* is a shopping center.

Material safety data sheet (MSDS) - written or printed material concerning a *hazardous substance* which is prepared by chemical manufacturers, importers, and employers for hazardous chemicals pursuant to OSHA's Hazard Communication Standard, 29 CFR 1910.1200.

National Contingency Plan (NCP) - the National Oil and Hazardous Substances Pollution Contingency Plan, found at 40 CFR § 300, that is the EPA's blueprint on how hazardous substances are to be cleaned up pursuant to CERCLA.

National Priorities List (NPL) - list compiled by EPA pursuant to CERCLA 42 USC § 9605(a)(8)(B) of properties with the highest priority for cleanup pursuant to EPA's Hazard Ranking System. See 40 CFR Part 300.

Occupants - those tenants, subtenants, or other persons or entities using the *property* or a portion of the *property.*

Obvious - that which is plain or evident; a condition or fact that could not be ignored or overlooked by a reasonable observer while *visually or physically observing the property.*

Other historical sources - any source or sources other than *aerial photographs, fire insurance maps, property tax files, recorded land title records, USGS 7.5-Minute topographic maps, local street directories, building department records, or zoning/land use records* that are credible to a reasonable person and that identify past uses or occupancies of the property. The term includes records in the files and/or personal knowledge of the *property owner* and/or *occupants.*

Owner - generally the fee owner of record of the property.

Petroleum exclusion - the exclusion from CERCLA liability provided in 42 USC §9601(14), as interpreted by the courts and EPA: "The term (hazardous substance) does not include petroleum, including crude oil or any fraction thereof which is not otherwise specifically listed or designated as a hazardous substance under subparagraphs (A) through (F) of this paragraph, and the term does not include natural gas, natural gas liquids, liquefied natural gas, or synthetic gas usable for fuel (or mixtures of natural gas and such synthetic gas).

Petroleum products - those substances included within the meaning of the *petroleum exclusion* to CERCLA, 42 USC §9601(14), as interpreted by the courts and EPA, that is: petroleum, including crude oil or any fraction thereof which is not otherwise specifically listed or designated as a hazardous substance under Subparagraphs (A) through (F) of 42 USC §9601(14), natural gas, natural gas liquids, liquefied natural gas, and synthetic gas usable for fuel (or mixtures of natural gas and such synthetic gas). (The word fraction refers to certain distillates of crude oil, including gasoline, kerosene, diesel oil, jet fuels, and fuel oil, pursuant to *Standard Definitions of Petroleum Statistics.*

Phase I Environmental Site Assessment - the process described in ASTM E 1527. A Phase I Environmental Site Assessment must be performed by an *environmental professional.*

Pits, ponds, or lagoons - man-made or natural depressions in a ground surface that are likely to hold liquids or sludge containing *hazardous substances* or *petroleum products.* The likelihood of such liquids or sludge being present is determined by evidence of factors associated with the pit, pond, or lagoon, including, but not limited to, discolored water, distressed vegetation, or the presence of an obvious wastewater discharge.

Physical setting sources - sources that provide information about the geologic, hydrogeologic, or topographic characteristics of a *property.*

Practically reviewable - information that is practically reviewable means that the information is provided by the source in a manner and in a form that, upon examination, yields information relevant to the *property* without the need for extraordinary analysis of irrelevant data. The form of the information shall be such that the user can review the records for a limited geographic area. Records that cannot be feasibly retrieved by reference to the location of the *property* or a geographic area in which the *property* is located are not generally *practically reviewable.* Most databases of public records are *practically reviewable* if they can be obtained from the source agency by the county, city, zip code, or other geographic area of the facilities listed in the record system. Records that are sorted, filed, organized, or maintained by the source agency only chronologically are not generally practically reviewable. For large databases with numerous facility records (such as RCRA hazardous waste generators and registered underground storage tanks), the records are not *practically reviewable* unless they can be obtained from the source agency in the smaller geographic area of zip codes. Even when information is provided by zip code for some large databases, it is common for an unmanageable number of sites to be identified within a given zip code. In these cases, it is not necessary to review the impact of all of the sites that are likely to be listed in any given zip code because that information would not be *practically reviewable.* In other words, when so much data is generated that it cannot be feasibly reviewed for its impact on the *property*, it is not *practically reviewable.*

Preparer - the person preparing the *transaction screen questionnaire* pursuant to Practice E 1528, who may be either the *user* or the person to whom the *user* has delegated the preparation of the *transaction screen questionnaire.*

Property - the real property that is the subject of the *environmental site assessment* described in ASTM E 1527. Real property includes buildings and other fixtures and improvements located on the property and affixed to the land.

Property tax files - the files kept for property tax purposes by the local jurisdiction where the property is located and includes records of past ownership, appraisals, maps, sketches, photos, or other information that is reasonably ascertainable and pertaining to the property.

Publicly available - information that is publicly available means that the source of the information allows access to the information by anyone upon request.

RCRA generators - those persons or entities that generate hazardous wastes, as defined and regulated by RCRA.

RCRA generators list - list kept by EPA of those persons or entities that generate hazardous waste as defined and regulated by RCRA.

RCRA TSD facilities - those facilities on which treatment, storage, and/or disposal of hazardous wastes takes place as defined and regulated by RCRA.

RCRA TSD facilities list - list kept by EPA of those facilities on which treatment, storage, and/or disposal of hazardous wastes takes place as defined and regulated by RCRA.

Reasonably ascertainable - for purposes of both ASTM Practice E 1527 and E 1528, information that is (1) *publicly available*, (2) obtainable from its source within a reasonable time and cost constraints, and (3) *practically reviewable.*

Recognized environmental conditions - the presence or likely presence of any *hazardous substance* or *petroleum products* on a *property* under conditions that indicate an existing release, a past release, or a material threat of a release of any *hazardous substance* or *petroleum products* on the *property* or into the ground, groundwater, or surface water of the *property*. The term includes *hazardous substance* or *petroleum products* even under conditions in compliance with laws. The term is not intended to include *de minimis* conditions that generally do not present a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies.

Recorded land title records - records of fee ownership, leases, land contracts, easements, liens, and other encumbrances on or of the property recorded in the place where land title records are, by law or custom, recorded for the local jurisdiction in which the *property* is located. (Often such records are kept by a municipal or county recorder or clerk.) Such records may be obtained from title companies or directly from the local government agency. Information about the title to the property that is recorded in a U.S. district court or any place other than where land title records are, by law or concern, recorded for the local jurisdiction in which the property is located, are not considered part of recorded land title records.

Records of emergency release notifications (SARA § 304) - Section 304 of Emergency Planning Community Right-to-Know Act (EPCRA) or Title III of SARA requires operators of facilities to notify their local emergency planning committee (as defined in EPCRA) and state emergency response commission (as defined in EPCRA) of any release beyond the facility's boundary of any reportable quantity of any extremely hazardous substance. Often the local fire department is the local emergency planning committee. Records of such notifications are "Records of Emergency Release Notifications" (SARA § 304).

Records review - that part of the Phase I Environmental Site Assessment that addresses which records shall or may be reviewed.

Report - the written record of a transaction screen process as required by Practice E 1528 or the written report prepared by the environmental professional and constituting part of a "Phase I Environmental Site Assessment," as required by ASTM E 1527.

Site reconnaissance - that part of ASTM Practice E 1527 (Section 8) that addresses what should be done in connection with the *site visit.* The site reconnaissance includes, but is not limited to, the *site visit* done in connection with such a Phase I Environmental Site Assessment.

Site visit - the visit to the property during which observations are made constituting the *site reconnaissance* section of the Phase I Environmental Site Assessment in Practice E 1527 and the *site visit* requirement of the transaction screen process in Practice E 1528.

Solid waste disposal site - a place, location, tract of land, area, or premises used for the disposal of solid wastes as defined by state solid waste regulations. The term is synonymous with the term *landfill* and is also known as a garbage dump, trash dump, or similar term.

Solvent - a chemical compound that is capable of dissolving another substance and is itself a *hazardous substance,* used in a number of manufacturing/industrial processes, including but not limited to the manufacture of paints and coatings for industrial and household purposes, equipment cleanup, and surface degreasing in metal fabricating industries.

Standard environmental record sources - those records specified in the Records Review Section of the Phase I Environmental Site Assessment of Practice E 1527 (Section 7.2.1.1).

Standard historical sources - those sources of information about the history of uses of property specified in the Records Review Section of the Phase I Environmental Site Assessment of Practice E 1527 (Section 7.3.4).

Standard physical setting source - a current USGS 7.5- minutetopographic map (if any) showing the area on which the property is located.

Standard practices - the activities set forth in either Practice E 1527 or E 1528, or both, for the conduct of environmental site assessments.

Standard sources - sources of environmental, physical setting, or historical records specified in the Records Review (Section 7) of the Phase I Environmental Site Assessment of Practice E 1527.

State registered USTs - state lists of underground storage tanks required to be registered under Subtitle I, Section 9002 of RCRA.

Sump - a pit, cistern, cesspool, or similar receptacle where liquids drain, collect, or are stored.

Transaction screen process - the process described in Practice E 1527.

Transaction screen questionnaire - the questionnaire provided in Practice E 1528-96.

TSD facility - treatment, storage, or disposal facility (*see RCRA TSD facilities*).

Underground storage tank (UST) - any tank, including underground piping connected to the tank, that is or has been used to contain *hazardous substances* or *petroleum products* and the volume of which is 10 percent or more beneath the surface of the ground.

User - the party seeking to use Practice E 1528 to perform an *environmental site assessment* of the *property*. A user may include, without limitation, a purchaser of *property*, a potential tenant of property, an *owner* of *property,* a lender, or a property manager.

USGS 7.5-Minute Topographic Map - the map (if any) available from or produced by the United States Geological Survey, entitled "USGS 7.5-Minute Topographic Map," and showing the property.

Visually and/or physically observed - during a *site visit* pursuant to Practice E 1528 or E 1527, this terms means observations made by vision while walking through a *property* and the structures located on it and observations made by the sense of smell, particularly observations of noxious or foul odors. The term "walking through" is not meant to imply that disabled persons who cannot physically walk may not conduct a *site visit*; they may do so by the means at their disposal for moving through the *property* and the structures located on it.

Wastewater - water that (1) is or has been used in an industrial or manufacturing process, (2) conveys or has conveyed sewage, or (3) is directly related to manufacturing, processing, or raw materials storage areas at an industrial plant. Wastewater does not include water originating on or passing through or adjacent to a site, such as stormwater flows, that has not been used in industrial or manufacturing processes, has not been combined with sewage, or is not directly related to manufacturing, processing, or raw materials storage areas at an industrial plant.

Zoning/land use records - those records of the local government in which the *property* is located indicating the uses permitted by the local government in particular zones within its jurisdiction. The records may consist of maps and/or written records. They are often located in the planning department of a municipality or county.

APPENDIX G

ARIZONA DEPARTMENT OF TRANSPORTATION
MATERIAL SOURCE FILE

Form 304-978-1m-2-27-31

ARIZONA HIGHWAY DEPARTMENT

RIGHT OF WAY DIVISION

File No.

MARICOPA COUNTY DATE

BLYTHE-WICKENBURG HIGHWAY F.A.P.No. 98-A A.F.E.No.

OWNER

Parties in Interest

Title of Claimant

Condition of Land

Improvements Affected

Conveyance Executed Consideration

Recorded Page Book

Claim Date No. Warrant Date No.

Warrant Sent to

Valuation Per Acre	Owner's Figure	Assessor's Figure	Joining Lands

Sect. 13

Subd. SW 1/4 SE 1/4

Twp. 7 North

Range 7 West

Width

Length

Area of R/W

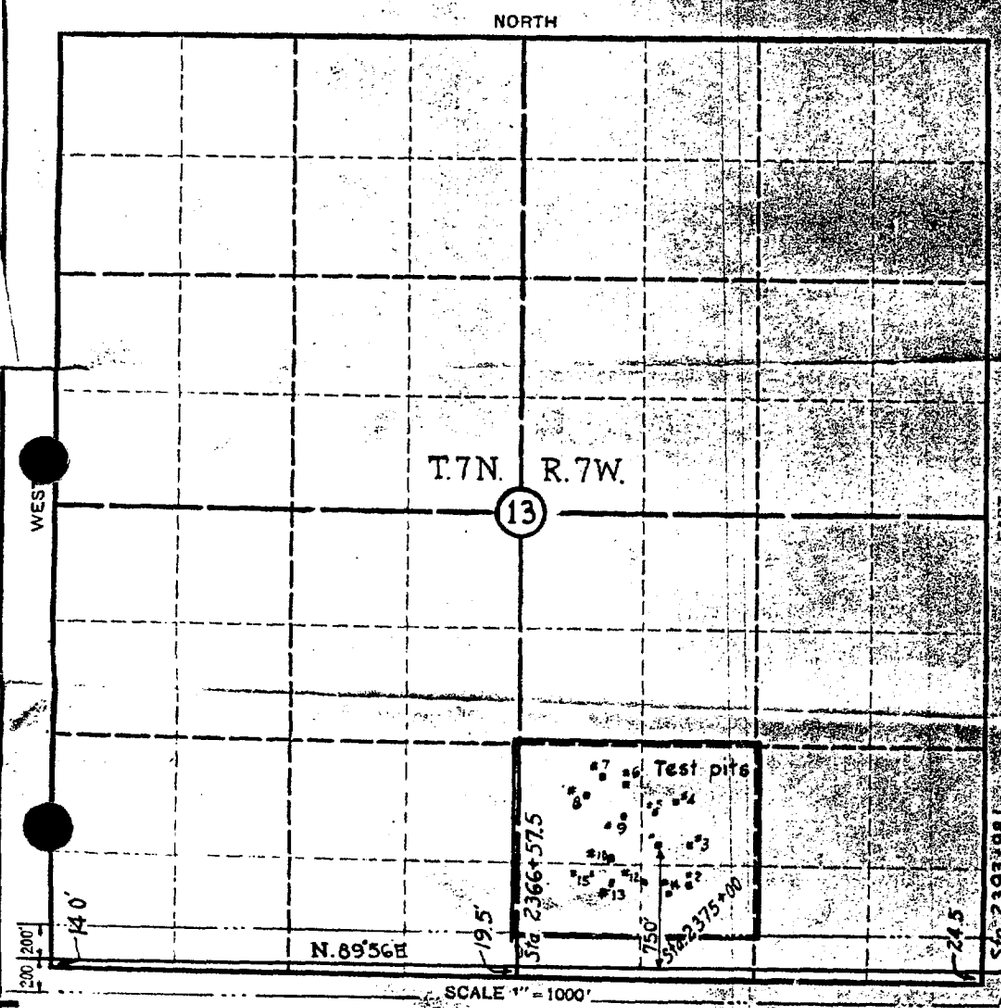
Area of Old Road

Net Area

Purpose of Property

Stabilizer Pit

Sta 2375 (150' Lt.)

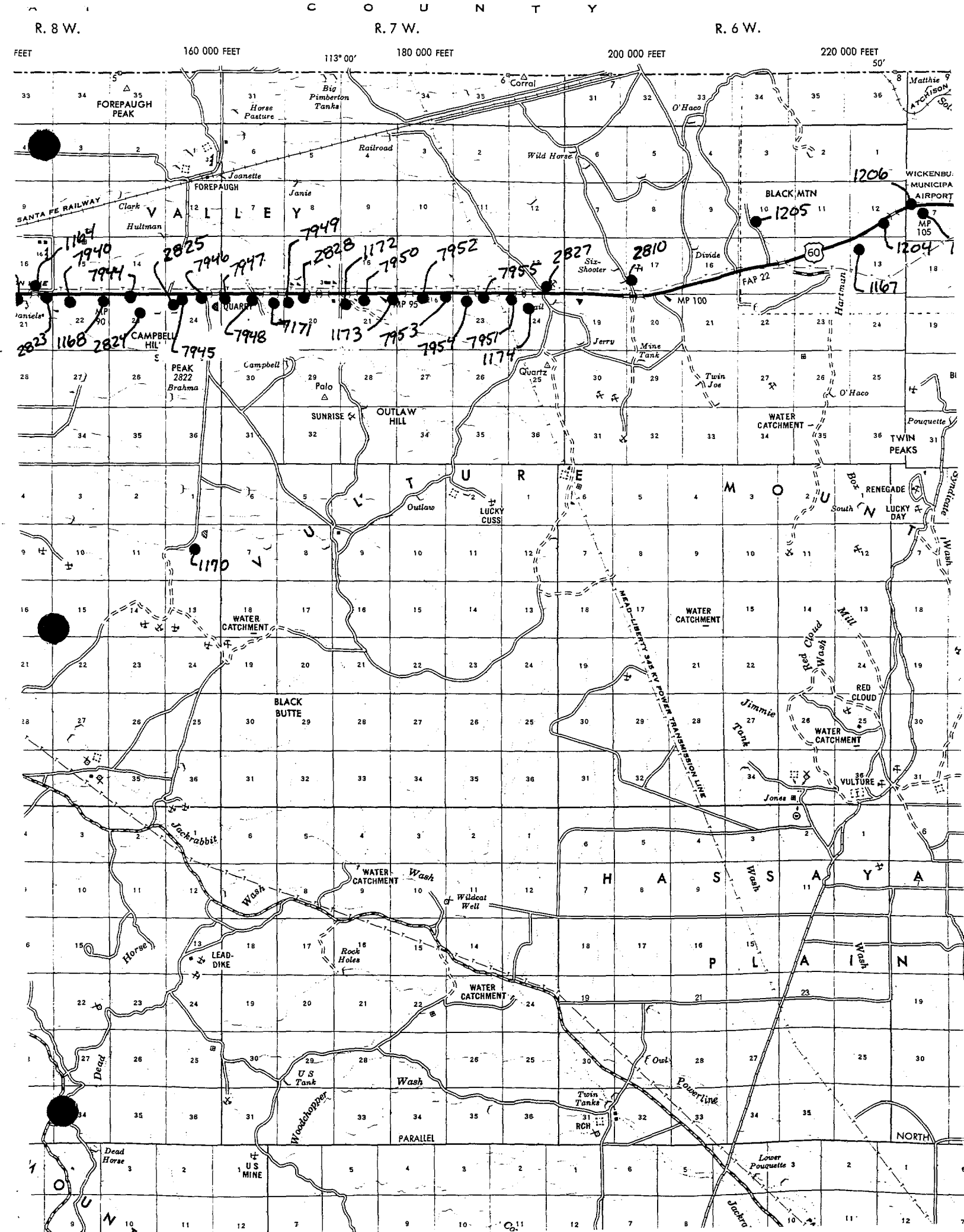


Plat Drawn by AHW 1-5-32

Plat Checked

R/W Secured

#7827


COUNTY
R. 8 W.
R. 7 W.
R. 6 W.
160 000 FEET
180 000 FEET
200 000 FEET
220 000 FEET
113° 00'
50'
FOREPAUGH PEAK
Big Pimberton Tanks
Horse Pasture
Corral
O'Haco
Railroad
Wild Horse
Joanette
FOREPAUGH
Janie
SANTA FE RAILWAY
Clark
VALLEY
Hultman
BLACK MTN
1205
1206
WICKENBU
MUNICIPA
AIRPORT
MP 105
1204
1167
60
FAP 22
Six-Shooter
2810
Divide
Hartman
MP 100
MP 95
MP 90
QUARRY
CAMPBELL HILL
PEAK 2822
Brahma
Campbell
Palo
SUNRISE
OUTLAW HILL
Jerry
Mine Tank
Quartz
Twin Joe
O'Haco
WATER CATCHMENT
Pouquette
TWIN PEAKS
Box
RENEGADE
South
LUCKY DAY
Syndicate
Outlaw
LUCKY CUSS
VULTURE
1170
MEAD-LIBERTY 345 KV POWER TRANSMISSION LINE
Red Cloud Wash
Mill
Wash
RED CLOUD
Jimmie
Tank
Jones
BLACK BUTTE
Jackrabbit
Wash
Wildcat Well
HASSAYAMPA
PLAIN
Horse
LEAD-DIKE
Rock Holes
Dead
US Tank
Woodchopper
Twin Tanks
Owl
Powerline
RCH
PARALLEL
NORTH
Dead Horse
US MINE
Lower Pouquette
Jackro
1164
7940
7944
2825
7946
7947
7949
2828
1172
7950
7952
2827
7955
2823
1168
2824
7945
7948
7171
1173
7953
7954
7951
1174

ARIZONA HIGHWAY DEPARTMENT
Material Division

Proj. No. [illegible]
Sample No. 68-57 and 68-2
Lab. Rept. No.

Field Report on Sample of GRAVEL, Stabilizer.

From Wickenburg-Blythe Highway

F. A. Proj. No. 98 A Wickenburg-Aguila

Spec. Governing 8B

To be used in construction of

Water available No.

Date Sampled Dec. 2, 1931.

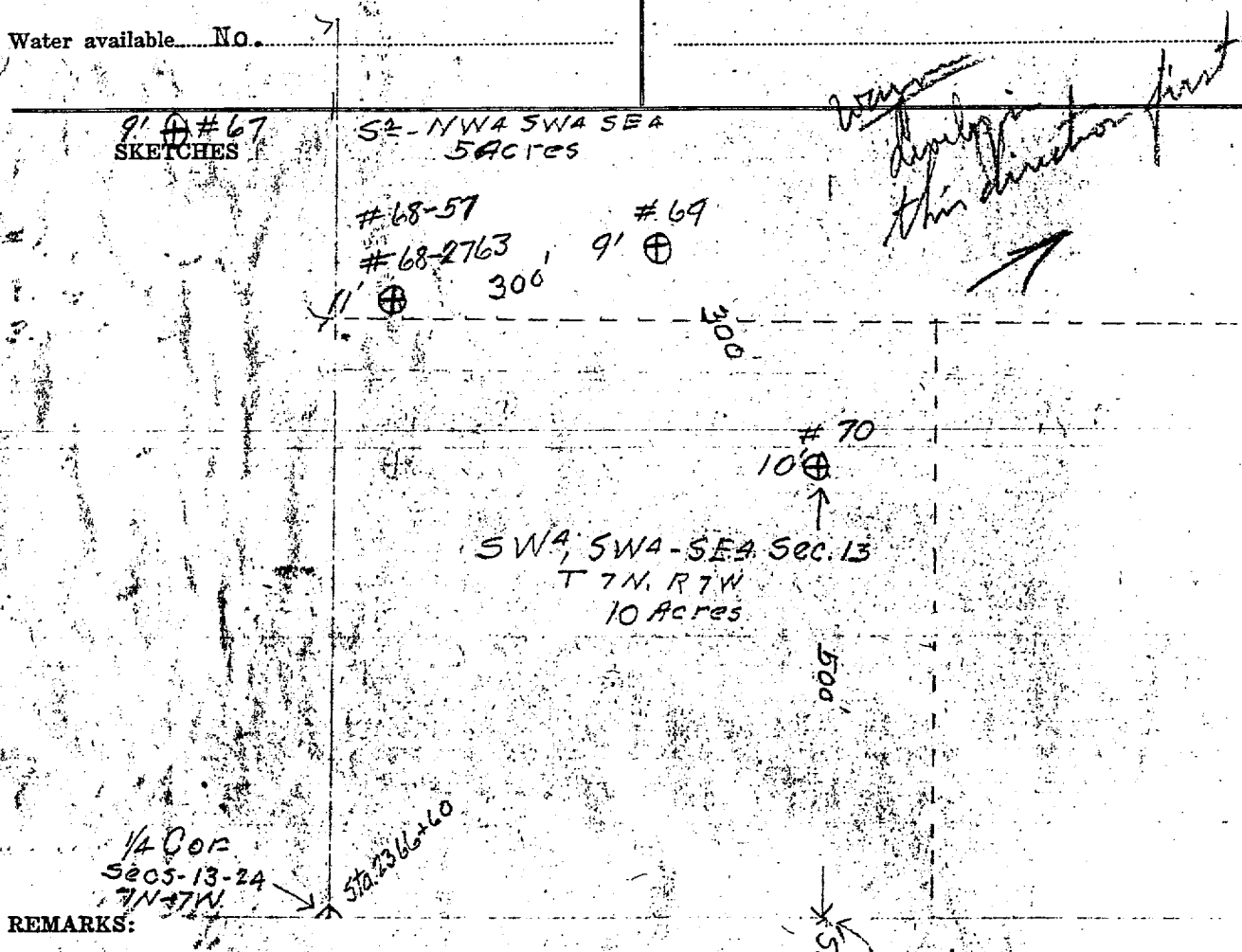
Sampled by Jacobs
Two Samples

Source of Sample Pit 11 ft. deep

Quantity Represented 36,000 Cu Yds.

Location of Supply 500 ft. L. Sta. 2372.

SKETCHES



REMARKS:

This location is on level ground, no clearing necessary. Near Campbell sheep tank.

Eleven test pits were dug in this vicinity, some good material, others deficient in metal, also dug 5 pits one half mile N.E. at N.W. end of hills, found no suitable material.

Signed J. P. Rivers

Title Engineer

Sec # 2827.

Form 260-717—1M—7-8-29

ARIZONA HIGHWAY DEPARTMENT
Material Division

Proj. No. .....
Sample No. .....
Lab. Rept. No. .....

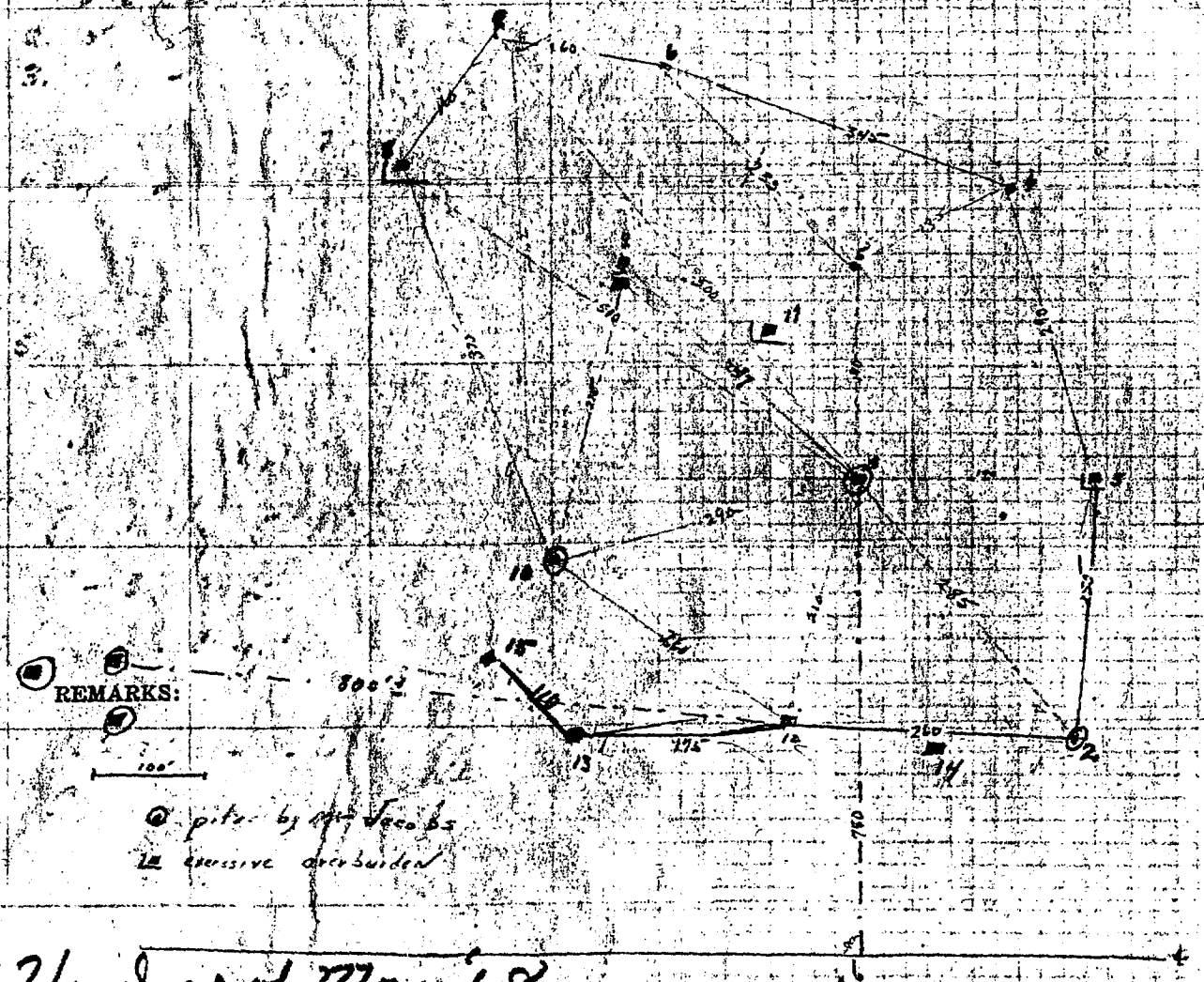
Field Report on Sample of Stabilizer

From Wickenburg Blythe Highway
F. A. Proj. No. 789
Spec. Governing II-13
To be used in construction of
Stabilizer
Water available

Date Sampled 12-23-
Sampled by Rum
Source of Sample as shown
Quantity Represented -
Location of Supply 750' N 2376

SKETCHES

Scale 1 division = 20'



Used as of MAY '68

Over for remarks

Signed Rum

Title

Form 260-717—1M—7-8-29

#2027

ARIZONA HIGHWAY DEPARTMENT
Material Division

Proj. No. 964
Sample No.
Lab. Rept. No.

Field Report on Sample of

From ..... Highway

F. A. Proj. No.

Spec. Governing

To be used in construction of

Water available

Date Sampled 12-23-31

Sampled by

Source of Sample

Quantity Represented

Location of Supply

Notes on pits (See the sketches by Moore.)

SKETCHES

#1. 8½' deep - 2' adobe 4' Caliche 2½' sand & clay. (Mixed for best product.)
2. 10' - 1½ adobe 4' ✓ next 4½' clay & metal.
3. 7' - 5' high shrinkage clay would have to be stripped 2' good material
4. 7' - 2' clay 5' caliche wet (little metal) 2' caliche wet metal (40%) 1' sand. (Mixed for best product)
5. 6' - 1½' clay 3' caliche & some sand 1½ clay with no metal
6. 6½' - 1½ ✓ 2 Caliche & metal 2 Caliche 1' sand (still in sand)
7. 8' - 1' clay 5' Caliche & metal 2' sand & red clay.
8. 6' - 3½ adobe Caliche & metal + —
9. 10 - 3½' clay & Caliche some sand last 3' clay with no metal (Sample)

REMARKS:

10. 13' - 2' clay - 4' Caliche & metal - 1' sand - Caliche & metal
11. Overburden pit 4' of adobe to Caliche
12. 9½' deep - 1½' overburden - 2' very hard caliche with metal & Caliche and no metal (sample) & sand & caliche
13. - 2' overburden 2½' caliche little metal 3' sand with red clay.
14. Just started - 2' overburden 2' + Caliche
15. 8½' 2' clay 1' sand - (see sample) Red clay at 7'

Signed

Title

Form 260-717—1M—1-8-29

APPENDIX H

INTERVIEW AND OTHER COMMUNICATION DOCUMENTATION

BROWN AND CALDWELL

Environmental Engineering & Consulting

September 7, 2000

FAX TRANSMITTAL COVER SHEET

PLEASE DELIVER THE FOLLOWING PAGES TO:

Name	Company	City/State	FAX
Rob Collins	Maricopa County	Phoenix/AZ	(602) 506-6862

THIS TRANSMITTAL IS BEING SENT FROM:

Name:	Janice Petticrew	**Return originals:**	Yes ☒	No ☐
Employee No:		**Stamp:**	Yes ☐	No ☒
Project No:	19422.001	**Staple:**	Yes ☐	No ☒
Task.G/L:				

NUMBER OF PAGES BEING TRANSMITTED INCLUDING COVER SHEET: 1

SPECIAL INSTRUCTIONS/REMARKS:

Mr. Collins,
I would like to request any information concerning illegal dumping at a site located approximately 9 miles west of Wickenburg, Arizona, along US Highway 60. The site is located in the southwest quarter of the southeast quarter of Section 13, Township 7 North, Range 7 West. I have conducted a site visit and have found indications of dumping on the site. The property is owned by the Arizona State Land Department. The site is known as the Forepaugh mineral pit.

Please fax any information to me at (602) 222-4466.

Thank You,
Janice Petticrew
Brown and Caldwell

Environmental Engineering And Consulting

SUITE 200, 3636 NORTH CENTRAL AVENUE, PHOENIX, ARIZONA 85012-1931
TEL: (602) 222-4444 FAX: (602) 222-4466

BROWN AND CALDWELL

File: _____

RECORD OF TELEPHONE CONVERSATION

DATE: 8/2/00	JOB: 19422	
Individual	**Organization**	**Telephone No.**
FROM: Janice Pettigrew		
TO: Gary Slusher	ASLD	602-542-2652
SUBJECT: State's reclamation requirements		

NOTES:

Types of general reclamation requirements for gravel pits

- Conceptual drawing
- Side slopes remaining to be 1:4
- Clean up Site -- remove all wastes.
- Secure site
- Make sure drainage is not permanently deviated.

(attach additional pages if needed)

ACTION REQUIRED:

Routing:	Initials	Routing:	Initials

BROWN AND CALDWELL

File: _____

RECORD OF TELEPHONE CONVERSATION

DATE: 8/15/01	JOB:	
Individual	**Organization**	**Telephone No.**
FROM: Janice Patterson		
TO: ADWR		602-417-2405
SUBJECT: Wells located near Forepaugh Site.		

NOTES:

I asked if there were any registered wells located in Sec. 13 of T7N, R7E.

One well in Sec. 13 registered -- no quarter sections provided. Listed for Saga Exploration. The well is only listed as "exploration" so there is no water.

Another well in Sec. 18 for Saga also. It is also only for exploration -- no water.

Closest water well is in Sec. 18 about 1 mile east of Site. Small well with an exempt status -- small quantity output. SE¼ of SE¼ of Sec. 18.

(attach additional pages if needed)

ACTION REQUIRED:

Routing:	Initials	Routing:	Initials

BROWN AND CALDWELL

File: _____

RECORD OF TELEPHONE CONVERSATION

DATE: 8/17/00	JOB: 19422	
Individual	**Organization**	**Telephone No.**
FROM: Janice Pettigrew		
TO: Ken Bouas	ADOT	602-712-7098
SUBJECT: Files concerning Forepaugh Pit		

NOTES:

Ken said that he found one file for the site location SE¼, SE¼, T7N, R7E. The file #2827. Test were conducted in 1931 and 1932. He will provide copies for us. He does not know how long ADOT mined the site. No info. in file.

(attach additional pages if needed)

ACTION REQUIRED:

Routing:	Initials	Routing:	Initials

BROWN AND CALDWELL

File: _____

RECORD OF TELEPHONE CONVERSATION

DATE: 9/12/00	JOB: 19422	
Individual	**Organization**	**Telephone No.**
FROM: Janice Pitticrew	B+C	
TO: Gary Slusher	ASLD	602-542-2682
SUBJECT:		

NOTES:

Gary said that they have checked the files and they cannot find any former leases for the Site. ADOT at one time had an open permit to use any State Land for material sources. Therefore, they probably used the Site prior to the time when leases were required.

The Site is currently included within a much larger "grazing lease" that is held by Mr. Robert F. Echeverria, Lease No. 05-377. ~~Gary~~ ~~did not know~~ Gary said that ASLD will coordinate any negotiations between the rancher and MCDOT concerning the corral on Site. We just need to mention in the MOP that MCDOT will work with the rancher to resolve any access issues concerning the corral and MCDOT's operations.

(attach additional pages if needed)

ACTION REQUIRED:

Routing:	Initials	Routing:	Initials

APPENDIX I

QUALIFICATION OF ENVIRONMENTAL PROFESSIONALS

Principal Geologist

Kevin D. Hebert, R.G.

Assignment

Project Manager

Education

B.S., Geology, University of Southwestern Louisiana, 1983

Registration

Registered Geologist 26388, Arizona, 1992

Training / Certification

OSHA 40-Hour Health and Safety Training

OSHA 40-Hour Hazardous Waste Operations and Emergency Response

Dupont STOP Safety Training for Supervision

Mobil Oil Total Quality Management, 1992

Leadership Training Program, Stone Container Corporation, 1996

Experience

15 years

Joined Firm

1997

Experience Summary

Kevin Hebert has 15 years of experience in managing multidisciplinary environmental projects specializing primarily in characterization studies of complex geologic and hydrogeologic sites. His experience also includes industrial compliance issues including wastewater treatment, landfill closure, landfill permitting, and Aquifer Protection Permitting (APP). In addition, Mr. Hebert has managed numerous projects at sites that contained leaking underground storage tanks (USTs) and his responsibilities included directing site characterization, remediation, and closure. Mr. Hebert also has extensive experience in managing and directing resources to complete due diligence activities, including geologic evaluations at aggregate mine sites relating to multi-site property acquisitions. He has also worked in industry for a period of 3 years, and was responsible for managing large environmental budgets which makes him very sensitive to clients' budgeting issues.

Environmental Site Assessment

Phase I and II Environmental Site Assessment, Various Lenders, Attorneys, Property Owners, and State Governmental Agencies, Arizona and California
Project Manager. Conducted and managed numerous ESAs for due diligence for sites with varying complexities in Arizona and California.

Phase I and II Site Assessment, First Interstate Bank, LaJolla California
Project Manager. Conducted Phase I and Phase II site investigations at former automobile dealership in San Diego County.

Phase I Investigation, Confidential Client, San Diego County
Project Manager. Performed QA/QC activities for the completion of Phase I ESA at 11 surface mining facilities in San Diego County.

Phase I Environmental Site Assessments, Confidential Client, Salt Lake City, Utah
Principal-in-Charge. Managed and provided senior oversight for the completion of five Phase I ESAs at five surface mine facilities in Salt Lake City, Utah.

Phase I Environmental Site Assessments, Rental Service Corporation, National Account

Principal-in-Charge. Directed then completion on numerous phase I ESAs for rental sites across the nation. Conducted a preliminary evaluation of each operations compliance with local regulations and evaluated issues pertaining to on-site wash rack systems.

Phase I Environmental Site Assessments, Downtown Redevelopment Area, City of Chandler, Arizona

Principal-in-Charge. Directed completion of several ESAs for the redevelopment of a downtown city square in Chandler, Arizona. Completed asbestos surveys of each facility prior to demolition.

Site Investigation/Remediation

UST Investigation/Remediation, Mobil Oil Corporation, Arizona and California

Project Manager. Managed numerous site characterization and remediation projects for Mobil Oil Corporation at stations containing leaking underground storage tanks (USTs) in Arizona and California.

UST Investigation, Arizona State Land Department (ASLD), Pine Springs Site, Flagstaff, Arizona

Project Manager. Managed closure and removal of abandoned UST system at former automatic repair shop. Conducted complete site characterization to establish vertical and lateral extent of on-site contamination.

UST Investigation/Remediation, Texaco, Arizona

Project Manager. Provided management and oversight for several site characterizations and remedial investigations for leaking UST sites at Texaco facilities in Arizona.

Area-wide UST Investigation/Characterization, ADEQ, Winslow, Arizona

Project Manager. Conducted extensive investigation along abandoned corridor in Winslow, Arizona to characterize extent of contamination and identify potentially responsible parties (PRP). Magnetometer survey was conducted across area to evaluate the presence of abandoned USTs and an extensive soil vapor survey was conducted to evaluate the extent of vapor phase hydrocarbons in area.

UST Site Investigations, ADEQ, Arizona

Project Manager. Responsible for management of UST investigations, including characterization and remediation at LUST sites managed by the ADEQ State Lead Department.

Soil Remediation, Confidential Client, Arizona

Project Manager. Directed and managed the remediation of soil contaminated with toxaphene at a 160-acre parcel. Implemented strategies to remediate approximately 40,000 cubic yards of contaminated soil, which included blending the contaminated soil with clean soil on-site to reduce

concentrations of the soil to levels below the Arizona residential soil remediation level. Following successful remediation, this site was being developed for residential use.

Excavation and Removal of Buried Drains, Including Solid and Hazardous Waste, Confidential Client, Arizona

Project Manager. Directed and managed the investigation and characterization of a site where drums containing hazardous waste and other solid wastes were illegally buried. Initial investigation and characterization activities were completed in Level B personal protection equipment. Managed the removal, characterization, and disposal of all identified wastes on-site. Completed an extensive geophysical survey which included electromagnetic survey techniques to evaluate the potential existence of other unknown buried debris. Following waste removal, site was restored for redevelopment, including residential use.

Industrial Services

Landfill Closure, Stone Container, Arizona

Project Manager. Managed the site characterization, capping, and closure of an approximate 80 acre landfill containing wire, tree bark, lime grits, and other debris relating to operations at Stone Container's pulp and paper mill in eastern Arizona. Capping process included the placement and compaction of over 800,000 tons of paper sludge, followed by the placement of a soil cap.

Landfill Permitting, Stone Container Corporation, Arizona

Project Manager. Managed the acquisition of an Aquifer Protection Permit (APP) for the construction, operation, and maintenance of a clay-lined landfill for the disposal of paper sludge, old corrugated container (OCC) rejects, and de-inking (DI) rejects. Negotiated with the Arizona Department of Environmental Quality (ADEQ) to obtain the APP and demonstrated Best Available Demonstrated Control Technology (BADCT) to construct the landfill utilizing only a clay lined system as opposed to a dual liner system including clay and synthetic liners.

Construction of 260-acre Clay-lined Storage Impoundment, Stone Container Corporation, Arizona

Project Manager. Managed all activities in relation to the design, engineering, construction, operation and maintenance of a 5,000,000, 260-acre storage impoundment at Stone Container Corporation's pulp and paper mill in eastern Arizona. Obtained APP from ADEQ and dam safety permit from the Arizona Department of Water Resources (ADWR). Construction included construction of clay-lined pond and installation of synthetic liner for dam erosion protection.

Effluent Reuse Project, Stone Container Corporation, Arizona

Project Manager. Managed effluent reuse project which consisted of storage and seasonal irrigation of 3100 acres of biomass farmland with 14.5 million

gallons per day of effluent discharged from paper making processes at Stone Container's pulp and paper mill in eastern Arizona. Conducted water balance studies, gain-loss study and compiled weather data to assist in project design, and biomass species selection.

Environmental Investigations and Resource Assessments, Cornerstone Construction and Materials, Inc., San Diego County, California

Project Manager. Managed geologic and environmental due diligence activities pertaining to the acquisition sand and gravel quarries and concrete batch plants. Specific tasks included reviewing ESA's for 10 properties, assessing current operating permits and developing related compliance schedules for facility operators, review of reclamation plans and comparison with existing reserve estimates, and oversight and analysis of ALTA surveys. Field work involved collection and materials testing of aggregate and stone resources, drilling and lithologic logging to delineate variability of sand and gravel deposits, and baseline environmental soil sampling and analysis.

Environmental Investigations and Resource Assessments, Pioneer Southwest, Arizona, Nevada, and Utah

Principal-in-Charge. Managed geologic and environmental due diligence activities for multi-site acquisitions of aggregate mine sites and concrete batch plants in Salt Lake City, Utah, Phoenix, Arizona, and Las Vegas, Nevada. Specific tasks included the completion of phase I ESAs, preliminary evaluation of operating permits, and an estimation of the quality and quantity of the on-site aggregate deposits. Tasks also included completion on on-site drilling activities, field geologic mapping and preparation of a geologic model for each aggregate site. Topographic maps of the mine site were prepared and merged with conceptual mine plans to produce an estimate of the available resources at each site.

Environmental Investigations and Resource Assessments, RMC, Reno and Wadsworth, Nevada

Principal-in-Charge. Managed geologic and environmental due diligence activities for multi-site acquisitions of aggregate mine sites and concrete batch plants in Reno and Wadsworth, Nevada. Specific tasks included the completion of phase I ESAs, preliminary evaluation of operating permits, and an estimation of the quality and quantity of the on-site aggregate deposits. Tasks also included completion on on-site drilling activities, field geologic mapping and preparation of a geologic model for each aggregate site. Topographic maps of the mine site were prepared and merged with conceptual mine plans to produce an estimate of the available resources at each site.

Regulatory Compliance/Permitting

Aquifer Protection Permit (APP), Stone Container Corporation, Arizona

Project Manager. Coordinated and managed site investigations, data compilation, and APP application preparation for Stone Container's Snowflake facility. Negotiated permit conditions with ADEQ and monitored all compliance testing and sampling for existing APP.

Memberships

Arizona Geological Survey
Technical Association for the Pulp and Paper Industry (TAPPI)
Arizona Association of Industries

Environmental Scientist

Janice Petticrew

Assignment

Project Manager

Education

M.S., Environmental Resource Management, Arizona State University, 1983

B.S., Environmental Resource Management, Arizona State University, 1981

Supervisor and Management Seminars in Denver, Colorado, 1987

Project Management Seminar in Phoenix, Arizona, 1993

Training / Certification

40-Hour OSHA Hazardous Materials Training and Current 8-Hour Refresher

8-Hour OSHA Hazardous Materials Supervisor Training

8-Hour RCRA Training

8-Hour MSHA Training

First Aid and Cardio-Pulmonary Resuscitation (CPR) Certification

HM-126 and HM-181 Department of Transportation (DOT) Health and Safety Training; U.S. DOT Health and Safety Training and Medical Monitoring Program, Dallas, Texas

Asbestos Hazardous Emergency Response Act (AHERA) Certified Building Inspector/ Management Planner

Experience

11 years

Joined Firm

1996

Experience Summary

Janice Petticrew has over 11 years of experience in various phases of environmental research and analysis, including research regarding the interactions of plants, soils, and water, and the impacts of chemicals in the environment. She has experience in sampling vegetation and preparation of reclamation and revegetation plans. She has worked for environmental consultants since 1989, with projects involving air quality compliance and permitting, air sampling and monitoring, site assessments, WQARF investigations, asbestos inspections and abatement, remedial investigations and feasibility studies, risk assessments, Occupational Safety and Health Administration (OSHA) compliance, industrial hygiene, and emergency response. Ms. Petticrew also has previous experience as an Air Pollution Investigator for Maricopa County conducting inspections for compliance and renewal of air quality permits.

Ms. Petticrew's areas of specialized technical expertise include project management, regulatory compliance and reporting, health and safety, construction project oversight for soil excavation and remediation projects (including landfill removal projects), waste management, stormwater pollution prevention plans, industrial hygiene services (atmospheric and personnel testing), Phase I and II environmental site assessments (ESAs), quality assurance and quality control (QA/QC), mine reclamation revegetation plans and sampling, technical writing, and asbestos inspection and abatement projects.

Site Investigations and Remedial Actions

Phase I and II ESAs, Arizona, California, Nevada, Texas, Georgia, and Idaho
Environmental Scientist/Project Manager. Conducted numerous Phase I ESAs in accordance with American Society for Testing and Materials (ASTM) standards, including assessments for the Arizona Department of Transportation and Maricopa County Flood Control. Conducted Phase I ESAs in various states including Arizona, Nevada, California, Idaho, Texas, and Georgia. Provided project management, budgeting, proposal preparation, site investigations, historical research, soil and water sampling, and subsurface soil investigations (including soil gas surveys). Developed and implemented sampling and work plans, prepared site safety plans, prepared reports, interpreted data, and contacted and negotiated with agencies.

Conducted Two Phase I Environmental Site Assessments for the City of Phoenix at the Phoenix Goodyear Airport

Environmental Scientist. Conducted two Phase I Environmental Site Assessments for several sites located at the Phoenix Goodyear Municipal Airport on behalf of the City of Phoenix. A lease occupant was moving an industrial operation onto the site and the City requested the Phase I ESA since the Phoenix Goodyear Airport is located in the Phoenix-Goodyear Airport Superfund Study Area-South. Information was obtained from the EPA and ADEQ concerning the status of the investigations and remediations that are being conducted by the Goodyear Tire and Rubber Company under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

Phase I and II Remedial Investigations for state of Arizona Water Quality Assurance Revolving Fund (WQARF) site, near Tucson, Arizona

Environmental Scientist. The scope of work included development of a sampling and work plan, removal and disposal of over three thousand 55-gallon drums, conducting air monitoring for worker safety, coordinating field activities, and preparing reports. The site was formerly a used solvent recycling facility with most of the waste products remaining on-site. Acted as site supervisor and site health and safety officer.

Removal of Petroleum Contaminated Soil along a Right of Way in Tucson, Arizona

Environmental Scientist. In a partnership agreement between a Class I Railroad and the Arizona Department of Transportation (ADOT), petroleum contaminated soil (PCS) was identified and removed from a right of way section prior to the construction of a freeway in Tucson, Arizona. Thousands of yards of PCS were removed from the area over a several month period. The PCS was excavated and hauled from the site via trucks. Ms. Petticrew oversaw the project and was involved with overseeing the excavation activities, insuring that the trucks had the appropriate shipping papers, and coordinating with ADOT on the project.

Waste Management Services for the Arizona Department of Environmental Quality

Project Manager. Provided waste management services and disposal for investigative derived wastes resulting from the investigations of the WQARF sites in Arizona for the Arizona Department of Environmental Quality (ADEQ). The ADEQ has a contract for investigative derived wastes. Wastes usually consisted of water from groundwater investigations and drill cuttings. Wastewater, if it was non-hazardous waste, was discharged into the municipal sewer system after a permit was obtained. Drill cuttings were disposed of at local landfills normally. Hazardous waste was disposed of at various hazardous waste facilities.

Polychlorinated Biphenyls (PCB) Remedial Investigation, Department of Energy, Phoenix, Arizona

Site Supervisor. Acted as the site supervisor and health and safety officer for a PCB remedial investigation for the Department of Energy (DOE) at an

electrical substation in Phoenix. Prepared the work plan and site safety plan, performed on-site project management and supervision, collected soil samples, prepared sampling plan according to current EPA regulations for PCBs, interpreted analytical results, and prepared the final report. Performed initial site characterization using soil sampling, excavated PCB-impacted soil around capacitor banks, conducted personal air monitoring of workers, documented work activities, conducted backfilling and compaction to DOE specifications, collected wipe samples from capacitor banks for clearance, decontaminated PCB-impacted structures using solvent rinsing to remove PCBs, and prepared the final report.

Landfill Removal Project Oversight, Indian Bend Wash Study Area, Federal Superfund Area, Arizona

Project Manager. Managed the project for the Arizona DOT. The project involved the removal of debris from three separate landfills along the Salt River in Tempe. Acted as ADOT's Environmental Representative at the site and provided oversight of the contractor's removal activities. Prepared weekly status reports and enforced the EPA-approved work plan and health and safety plan. The project was extended for 1 year. Additionally, conducted ambient air monitoring to insure that harmful vapors were not encountered during the excavation activities. Also provided oversight during removal of hazardous materials encountered during removal of the landfill wastes.

Decontamination of Plating and Etching Manufacturing Area, Las Vegas, Nevada

Project Manager. Provided project management for decontamination and disassembly of a former plating and etching manufacturing facility in Las Vegas. The area to be cleaned was enclosed in a negative air containment. Air monitoring for carbon monoxide and organic vapors was conducted throughout the project. The project was completed on time, under budget, and the client was pleased with the work. The project involved clean-up of acid and caustic chemicals; neutralization of the chemicals through the wastewater treatment system; ambient air monitoring; final clearance sampling for assessment of the completion of the decontamination of the equipment and facility surfaces; and preparation of several change orders and the final report. Work was conducted in Level B personal protective equipment (PPE), tanks were decontaminated, exhaust system ductwork was cleaned and removed, equipment was disassembled and cleaned for reuse, and the facility floor was cleaned using a wet sand scrubber.

Regulatory Compliance and Industrial Services

Air Quality Permit Application for a Flexible Circuit Board Manufacturing Facility, Chandler, Arizona

Project Manager. Prepared an air quality permit application and several minor change applications for a printed circuit board manufacturing facility in Chandler. Preparation of the permit application entailed a facility audit of the processes and the control equipment, evaluation of the process plans

and diagrams, conducting an emissions inventory, calculation of the air emissions, and preparation of an operations and maintenance plan. Completed the application on time and negotiated with Maricopa County Air Pollution Control Division concerning permit conditions on behalf of the client. Additional equipment and process lines were added to the facility at a later date and this required submittal of several minor change applications. Completed these applications that involved descriptions of the new process, calculations of the emissions, and completion of the application forms.

Stormwater Pollution Prevention Plan – Update/Revisions – Arizona Army National Guard, Papago Park Military Reservation, Phoenix, Arizona

Environmental Scientist/Project Leader. Conducted an inspection of the facility to evaluate the stormwater and non-stormwater discharges at the military reservation. Also evaluated the current best management practices that were employed at the military reservation. Based on the inspection and information provided by the client, Ms. Petticrew developed the updated and revisions to the stormwater pollution prevention plan. The plan included updates/revisions to the Best Management Practices Plan.

Stormwater Pollution Prevention Plan - Chain Link Fence Manufacturing Facility, Phoenix, Arizona

Environmental Scientist. Conducted an inspection of the facility to evaluate the stormwater and non-stormwater discharges at the facility. Also evaluated the current best management practices that were employed at the facility. Based on the inspection and information provided by the client, Ms. Petticrew developed the stormwater pollution prevention plan. The plan included a Best Management Practices Plan.

Stormwater Pollution Prevention Plan – Update/Revision – Arizona Army National Guard, Silver Bell Heliport Training Complex, Marana, Arizona

Environmental Scientist/Project Leader. Conducted an inspection of the training complex to evaluate the stormwater and non-stormwater discharges at the training complex. Also evaluated the current best management practices that were employed at the training complex. Based on the inspection and information provided by the client, Ms. Petticrew developed the updates and revisions to the stormwater pollution prevention plan. The plan included updates/revisions to the Best Management Practices Plan.

Waste Management Services, Various Clients in Arizona

Project Manager. Provided project management of waste management services for over 2 years. Scheduled project personnel to collect, package, label, transport, and store wastes for disposal on behalf of clients. Managed one project involving collection and disposal of a household hazardous waste event for the City of Peoria. Managed other projects involving laboratory packing of chemicals, disposal of petroleum hydrocarbon contaminated (PCS) special waste in the State of Arizona, management of the investigative derived wastes for the Arizona Department of Environmental Quality (ADEQ) for several years, and purging and

decontamination of six 34,000-gallon propane tank cars for the Santa Fe Railroad. Provided waste management services that included transportation of waste; sampling and characterization of waste; profiling waste into appropriate disposal, treatment, or recycling facility; report preparation to document waste handling process and final disposition of waste; and completion of shipping and transportation documents, container labels, waste manifests, and bills of lading on behalf of the clients.

Emissions Source Testing of Wet Scrubber Efficiency for a Confidential Air Cooling Media Manufacturer in Phoenix, Arizona

Project Manager. Managed and assisted with a project involving the emissions testing of a wet scrubber unit for a manufacturer of evaporative cooling media in Phoenix. The facility is a major source for formaldehyde and phenol emissions in Maricopa County. Air quality permit conditions required the facility to test the wet scrubber efficiency for the removal of formaldehyde and phenol from the air stream. Determined that the scrubber did not meet the efficiency requirements stated in the permit. Assisted the client with modifications of the existing control equipment to increase the scrubber efficiency. The wet scrubber was successfully modified and recent source re-testing verified this success. Sampled inlet and outlet air streams for formaldehyde and phenol using the National Institute of Occupational Safety and Health (NIOSH) air sampling methods. The results of the analyses indicated that the scrubber was functioning at 99.9 percent removal efficiency.

Wastewater Discharge Questionnaire and Stormwater Pollution Prevention Plan for a Circuit Board Manufacturing Facility, Chandler, Arizona

Project Manager. Prepared a wastewater discharge questionnaire for a confidential circuit board manufacturer in Chandler. Prepared the questionnaire, negotiated with the City of Chandler concerning facility discharge levels, and assisted the client with providing the information requested by the City. A permit was issued and established a periodic wastewater sampling schedule. In addition to the wastewater permit, Ms. Petticrew assisted the facility in developing and writing a stormwater pollution prevention plan involving the wet scrubber units located on the roof of the facility.

Facility Audit, Air Emissions Annual Inventory Report, and Air Quality Permit Application for Phoenix Transit System, Phoenix, Arizona

Air Quality Specialist. Conducted a facility audit and evaluated the emissions inventory for the Phoenix Transit North and South Facilities in Phoenix, Arizona. A revised permit application was prepared and submitted for the South facility and the annual emission inventories for 1995 and 1996 were prepared and submitted for both of the facilities. Emission control equipment was evaluated and emissions estimated for the various sources of volatile organic compounds, fuel burning equipment and particulate emissions. The permit was approved without complications by Maricopa County.

Air Quality Compliance Plan and SARA Reporting for a Wood Shutter Manufacturer in Phoenix, Arizona

Air Quality Specialist. Conducted a facility audit and prepared an equipment and emission inventory for the facility. Information obtained during the audit was utilized to prepare the annual emission report for the facility for 1995 and 1996. An emission control plan was also prepared since the facility was required to meet new requirements imposed by Maricopa County in 1996 concerning volatile organic compound limits in paints used in mill work manufacturing. The facility was brought into compliance and the control plan approved by Maricopa County. The toxic chemical release report (Form R) required under Section 313 of Title III of the Superfund Amendments and Reauthorization Act (SARA) were also prepared for the facility.

Emission Calculations for Plating and Etching Line, Major Defense Contractor, Mesa, Arizona

Project Manager. Performed the calculations for acid fume emission rates for a plating and etching line on behalf of a large defense contractor facility in Mesa. Performed this service as a subcontractor to an engineering firm installing the new plating and etching line at the facility.

Facility Audit, Evaluation, and Engineering Specifications for Air Pollution Control Equipment, Flexible Circuit Board Manufacturer, Chandler, Arizona

Project Manager. Conducted a facility audit and evaluation specifically aimed at the ventilation system for a manufacturer of flexible circuit boards in Chandler. Evaluated the air pollution control equipment and the ventilation system at the facility. Assisted in providing recommendations and specifications for upgrading and redesigning the air pollution control equipment and ventilation system at the facility. Four large, wet scrubbers were used to control acid vapors and cyanide from the plating and etching lines. The scrubbers were older units that required retrofitting and replacement in some cases. Managed the project and worked closely with chemical and process engineers.

Hazardous Material Management Plan, Air Quality Permit Application, and Dry Well Registration, and Aquifer Protection Permit Application for an Aluminum Door Manufacturer in Chandler, Arizona

Environmental Scientist. Prepared an air quality permit application for the painting operation of aluminum door frames. Additionally, prepared a hazardous materials management plan for the facility as requested by the City of Chandler Fire Department. Dry Wells had been installed at this new facility so a dry well registration applications was required. Since the facility handled hazardous materials around one of the dry wells, the Arizona Department of Environmental Quality requested an Aquifer Protection Permit (APP) for the dry well.

Hazardous Materials Management Plan - City of Phoenix, 91st Avenue Wastewater Treatment Plant, Phoenix, Arizona

Environmental Scientist/Project Leader. Collected the information for the Hazardous Material Inventory System (HMIS) for all of the chemicals used

at the facility. The format of the HMMP was prepared in accordance with the 1997 Uniform Fire Code, Appendix II-E, which was adopted by the City of Phoenix Fire Department. Ms. Petticrew along with other Brown and Caldwell personnel conducted a site inspection to obtain the information required in the HMMP. Ms. Petticrew coordinated with the City of Phoenix facility staff and the City of Phoenix Fire Department staff to develop the format for the HMMP. Facility floor plans were modified and included in the HMMP.

Storm Water Pollution Prevention Plan - Update/Revision - City of Phoenix, 91st Avenue Wastewater Treatment Plant, Phoenix, Arizona

Environmental Scientist/Project leader. Conducted an inspection of the facility to evaluate the stormwater and non-stormwater discharges at the facility. Also evaluated the current best management practices that were employed at the facility. Based on the inspection and information provided by the City of Phoenix, Ms. Petticrew developed the updates and revisions to the facility map and the best management practices.

Hazardous Materials Management Plan - City of Phoenix, Squaw Peak Water Treatment Plant, Phoenix, Arizona

Environmental Scientist/Project Leader. Collected the information for the Hazardous Material Inventory System (HMIS) for all of the chemicals used at the facility. The format of the HMMP will be prepared in accordance with the 1997 Uniform Fire Code, Appendix II-E and the new City of Phoenix Fire Department Fire Code. Ms. Petticrew conducted a site inspection to obtain the information required in the HMMP. Ms. Petticrew coordinated with the City of Phoenix facility staff and the City of Phoenix Fire Department staff to develop the format for the HMMP. Facility floor plans were modified and included in the HMMP.

Storm Water Pollution Prevention Plan, City of Phoenix, Squaw Peak Water Treatment Plant, Phoenix, Arizona

Environmental Scientist/Project leader. Conducted an inspection of the facility to evaluate the stormwater and non-stormwater discharges at the facility. Also evaluated the current best management practices that were employed at the facility. Based on the inspection and information provided by the City of Phoenix, Ms. Petticrew developed the updates and revisions to the facility map and the best management practices.

Industrial Hygiene Services, Asbestos, Health and Safety, and Emergency Response

Process Safety and Environmental Audit, Ceramic Parts Manufacturer, Tucson, Arizona

Industrial Hygienist. Conducted a safety process audit for a ceramic parts manufacturer in Tucson, Arizona. The facility used a beryllium-based ceramic material to manufacture the parts. They had installed a new tungsten/copper ceramic process and required a safety and environmental audit in order to develop a compliance program for the new line. Evaluated the safety procedures, wastes, air emissions, and wastewater discharge from

the process line. Prepared a final report including recommendations for additions to their compliance program. Assisted the company in developing self-audit check lists for their internal compliance program.

Indoor Air Quality Preliminary Assessment, Construction Business Office, Tempe, Arizona

Industrial Hygienist. Conducted a preliminary indoor air study for a construction business office in Tempe. Workers were complaining of headaches, nausea, irritated sinus cavities, and other miscellaneous concerns. Conducted the preliminary air monitoring using carbon dioxide and oxygen meters, an organic vapor meter, and calorimetric tubes for ozone gas. Measured air flow and direction in the office areas. Prepared a final report of the results of the preliminary investigation to increase air flow in the offices that would increase the oxygen content and decrease the carbon dioxide levels. Additionally, recommended having the heating, ventilation, and air conditioning (HVAC) system inspected.

Asbestos Abatement Project Oversight and Monitoring for the Maricopa County Flood Control District in Arizona

Environmental Scientist. Collected personal air samples and ambient air samples for an asbestos abatement project for Maricopa County Flood Control District. Also conducted asbestos inspections of the buildings prior to the abatement. Residential homes were to be demolished and removed in areas where flood control projects were to be conducted. The various projects involved the removal of asbestos-containing materials from each of the homes and buildings. Collected personal air samples for 25 percent of the workers and ambient air samples around the containment. The samples were sent to a laboratory for analysis. Recorded types of samples collected, completed chain-of- custody forms, shipped the samples to the laboratory, and prepared a final report of the analytical results. Provided safety and project oversight to ensure compliance with the work plan and the site health and safety plan.

Asbestos Abatement Project Oversight and Monitoring for Gilbert Public Schools in Gilbert, Arizona

Environmental Scientist. Collected personal air samples and ambient air samples for an asbestos abatement project for Gilbert Public Schools in accordance with the Asbestos Hazard Emergency Response Act (AHERA). The school buildings were undergoing demolition and renovation. The project involved the removal of asbestos-containing materials from each of the buildings. The work was conducted over several weeks. Collected bulk samples and also collected personal air samples for 25 percent of the workers and ambient air samples around the containment. The samples were sent to a laboratory for analysis. Recorded types of samples collected, completed chain-of-custody forms, shipped the samples to the laboratory, and prepared a final report of the analytical results. Provided safety and project oversight to ensure compliance with the work plan and the site health and safety plan.

Asbestos Abatement Project Oversight and Monitoring for a Public School in Phoenix, Arizona

Environmental Scientist. Collected personal air samples and ambient air samples for an asbestos abatement project for a Phoenix Public School in accordance with the Asbestos Hazard Emergency Response Act (AHERA). The asbestos was being removed in accordance with the schools Management Plan. The project involved the removal of asbestos-containing materials on of the building's attic. The work was conducted over several weeks. Collected bulk samples and also collected personal air samples for 25 percent of the workers and ambient air samples around the containment. The samples were sent to a laboratory for analysis. Recorded types of samples collected, completed chain-of-custody forms, shipped the samples to the laboratory, and prepared a final report of the analytical results. Provided safety and project oversight to ensure compliance with the work plan and the site health and safety plan.

Investigation of Odor Complaint, Municipal Wastewater Treatment Facility, Gilbert, Arizona

Industrial Hygienist. Conducted an investigation of an odor complaint at a municipal wastewater treatment facility in Gilbert. Complaints of noxious odors had been reported at a public school and a few residential sites. The school was situated adjacent to the treatment facility. Conducted ambient air monitoring at the school and an evaluation of the facility. Investigated the adjacent property uses for other types of facilities that also may have been potential sources of the odors. Prepared a final report concerning the results of the air monitoring and the investigation.

Air Pollution Investigations for Maricopa County Bureau of Air Pollution Control, Phoenix, Arizona

Air Pollution Investigator I. Conducted air pollution inspections at permitted facilities for compliance with permits and regulations. Inspected a variety of industrial facilities in south Phoenix including circuit board manufacturers, gasoline stations, electronics manufacturers, spray painting facilities, automotive repair facilities, etc. Involved in permit renewals, wrote notices of violations, citations, and involved in litigation proceedings. Trained by the USEPA as a National Emission Standard for Hazardous Air Pollutants (NESHAP) inspector. Conducted inspections of facilities undergoing asbestos abatement for compliance with AHERA and NESHAP.

Asbestos Abatement Project Oversight and Monitoring for the City of Tempe, Arizona

Environmental Scientist. Collected personal air samples and ambient air samples for an asbestos abatement project for the City of Tempe. Several residential homes were to be demolished for redevelopment by the City. The project involved the removal of asbestos-containing materials from each of the homes. The work was conducted over several weeks. One home was structurally unsafe and permission to demolish the building in place without removing the ACM was negotiated and obtained from Maricopa County. Collected personal air samples for 25 percent of the

workers and ambient air samples around the containment. The samples were sent to a laboratory for analysis. Recorded types of samples collected, completed chain-of- custody forms, shipped the samples to the laboratory, and prepared a final report of the analytical results. Provided safety and project oversight to ensure compliance with the work plan and the site health and safety plan.

Asbestos Abatement Project Oversight and Monitoring, Arizona State Mental Hospital, Phoenix, Arizona

Environmental Scientist. Collected personal air samples and ambient air samples for an asbestos abatement project at the Arizona State Mental Hospital in Phoenix. The project involved the removal of asbestos-containing materials around three boilers at the facility. The work was conducted at night during the shut-down period of the boilers. However, the boilers remained extremely hot during the shut-down, resulting in extreme care in removing the material from the hot pipes. Collected personal air samples for 25 percent of the workers and ambient air samples around the containment. The samples were sent to a laboratory for analysis. Recorded types of samples collected, completed chain-of- custody forms, shipped the samples to the laboratory, and prepared a final report of the analytical results. Provided safety and project oversight to ensure compliance with the work plan and the site health and safety plan.

Ambient Air Sampling for a Confidential Class I railroad in Phoenix, Arizona

Environmental Scientist. Conducted ambient air monitoring on behalf of a confidential Class I railroad in Arizona. A fire had occurred at a site where railroad ties and wood blocks were stored. Public concern for health effects from the clean-up of the burned materials resulted in the need for air monitoring to be conducted for the duration of the 2-week project. Collected air samples at each of the four perimeters of the rectangular-shaped site. These locations established the upwind and downwind samples required for comparison purposes. Monitored vapors in the air, as well as dust at the site. Analyzed samples collected. Prepared a final report indicating the results of the air monitoring program.

Emergency Response Incident, Free Liquid Mercury Spill, Public School, Clifton, Arizona

Site Supervisor. A thermometer had been broken and the mercury required clean-up and removal from the classroom. A carbon filtered high efficiency particulate air (HEPA) vacuum cleaner and a mercury spill kit were used to clean-up the free liquid mercury and contain the mercury vapors. Conducted air monitoring using a Jerome mercury vapor meter for final clearance monitoring.

Train Derailment Emergency Response, Northridge, California

Site Health and Safety Officer. An earthquake in Northridge resulted in a train derailment with rail cars containing sulfuric acid. Approximately 8,000 gallons of sulfuric acid were released at the site from several tank cars, and some diesel fuel from one of the engines had been released. Most of the acid was pumped into vacuum trucks, and the remaining contaminated soil

was neutralized in place with lime after negotiating with local agencies. Developed the site-specific health and safety plan, and provided oversight during the remedial activities. In addition to the sulfuric acid, approximately 1,000 gallons of diesel fuel spilled into the soil from an overturned engine. Excavated the diesel contaminated soil which was stockpiled for later disposal. A mobile laboratory was used on-site to perform the confirmation sample analysis during the excavation activities.

Emergency Response Clean Up of a Mercury Spill in a Residential Storage Building in Tucson, Arizona

Safety Officer. Conducted the clean up of approximately 100 pounds of free liquid mercury that had been spill by children in a storage building in Tucson. The emergency response was conducted for the Pima County Risk Management Department. The mercury and contaminated materials in the building were removed and disposed of as a hazardous waste. The interior of the building was heated to remove the mercury vapors and the heated air forced through carbon filters to remove the mercury.

Mine and Revegetation Project Experience

Aquifer Protection Permit and Air Quality Permit for an Asbestos and Construction Material Landfill at a Confidential Copper Mine in Arizona

Completion of the permit application for an APP for the landfill to accept a variety of inert wastes including asbestos. Approval was achieved within the scheduled date so that asbestos abatement projects at the mine proceeded on schedule. The air quality permit application was also completed and submitted to Pinal County. Approval for the air permit was also approved on schedule.

Arizona Department of Transportation Certification for Five Aggregate Mining Operations in Arizona

Checklists provided by ADOT were completed which included general facility information and all applicable environmental permits. Additionally Brown and Caldwell coordinated with two other contractors to complete a cultural resource survey and biological assessment of each facility which were included in the checklist package delivered to ADOT.

Vegetation Sampling for a Confidential Mine Site Permit in Wyoming

Assisted in the sampling of vegetation on a proposed coal mine site in northern Wyoming. Permanent sampling transects had been established and vegetation sampling for plant cover, density, frequency, and production was conducted. Was a member of an 8-person team and spent two weeks collecting all of the vegetation samples. Plant cover was estimated using half-meter plots, frequency was calculated, plant species identified, and plant materials were clipped by species to be used to obtain density and production data.

Development of a Reclamation/Revegetation Plan for a Confidential Mining Company in Arizona

Assisted in the development of a Reclamation/Revegetation Plan for a mine site closure in a semi-arid area east of Phoenix, Arizona. The mine site closure included reclamation of seven tailings ponds, several waste rock dumps, several surface water ponds and removal of the mine facilities. The initial investigative phase of the mine closure and decommissioning has been completed and the Reclamation Plan is in the process of being written.

Revegetation of a Protected Desert National Park Area South of Tucson, Arizona Following a Train Derailment

Assisted in the development of a revegetation plan for a small strip of area along a section of railroad track south of Tucson, Arizona. The confidential Class I Railroad Company experienced a 15-car derailment accident that caused damage to some of the native desert plants in this area. The area was located within a protected National Park, including a section of a protected river. The revegetation plan was coordinated with the Army Corp. of Engineers and with the National Park Service. The plan developed included the replacement of several trees and shrubs to return the area to a plant density similar to that which existed before the accident. This was achieved through transplanting and supplemental irrigation to establish the plants.

Environmental Scientist

Marnie Rand

Assignment

Environmental Scientist

Education

B.S., Forestry Management, Northern Arizona University, 1993

Training/Certification

OSHA 40-Hour HAZWOPER Training Certificate

8-Hour OSHA Hazardous Materials Certificate

Asbestos Hazardous Emergency Response Act (AHERA) Building Inspector Certification

AHERA Contract/Supervisor Certification

AHERA Management Planner

S-130 and S-190 Wildland Fire Training

Experience

6 years

Joined Firm

1997

Experience Summary

Marnie Rand has 6 years of experience in field service operations, including wildland firefighting, hazardous materials emergency response and cleanup operations, site safety, soil, water, and asbestos sampling, well monitoring, air monitoring, and natural resource surveying. Her experience also includes environmental site assessments (ESAs), Hazardous Material Management Plans, Stormwater Pollution Prevention Plans, Building Inspection reporting, health and safety audits, report preparation, and technical support.

Remedial Investigations

Remediation Project, City of Tucson, Arizona

Site Safety Officer. Project entailed the removal of several tons of aluminum dross. Assisted in the sampling of the dross prior to the removal activities, which occurred within a residential development. Performed technical and physical labor support during the remediation activities. Completed and organized transportation documentation and performed dust control during the remediation activities.

Remediation Project, Southern Pacific Transportation Company, Phoenix, Arizona

Site Safety Officer. This project required the removal of 12,000 tons of oil stained wood blocks mixed with soil. After a large fire had swept through the large pile of blocks, state and local agencies were concerned over the health risk inherent with the situation. Offered technical and labor support in the remediation of the site. Organized transportation documentation for the material, assisted in acquiring the proper permits for the job site, and was in charge of watering the dirt roads while on the job site. Completed and submitted the report to the client and to the ADEQ.

Remediation Project, Sante Fe Railroad, Phoenix, Arizona

Site Safety Officer. Project involved propane tank salvage for Sante Fe Railroad. Six propane tanks were flared-off to empty the propane contents. The tanks were then filled with water to rinse the residual propane from the carbon steel tank; dry ice was then used to inert the tank to prepare if for cutting. The tanks were cut and transported to the clients salvage yard. Provided technical and labor support for the execution of the project.

IDW Disposal, Weston, Inc., Phoenix, Arizona
Environmental Scientist. Coordinated IDW collection and disposal at one of the largest State Superfund investigations in Arizona. Responsibilities included collection of purge groundwater during the quarterly groundwater sampling activities for the West Van Buren Water Quality Assurance Revolving Fund (WQARF) study area. Coordinated the discharge of the purge groundwater into the City of Phoenix sewer system. Once the collection and discharge was completed, reports were composed and submitted to the City of Phoenix, Weston, and the Arizona Department of Environmental Quality (ADEQ).

IDW Disposal, Weston, Inc., Phoenix, Arizona
IDW Disposal Coordinator. Coordinated IDW collection and disposal for the State Superfund investigation for East Washington WQARF study.

Soil and Groundwater Sampling, ADEQ, Mesa, Arizona
Environmental Scientist. Provided technical and labor intensive services for a WQARF site in south Mesa, Arizona, under the direction of ADEQ. Conducted soil and groundwater sampling on the IDW generated during groundwater well installation activities. Coordinated transportation and manifest documentation for the soil, and corresponded with the City of Phoenix to acquire permission to discharge the purge groundwater into the City sewer system. Completed final report for submittal to ADEQ.

Incinerator Permit Sampling, USPCI, Clive, Utah
Sampling Technician. Sampled soil, ash, and liquid at the Clive Incinerator in Utah. The facility was undergoing test runs in order to obtain air quality permits for incinerating hazardous waste. Trained to take samples on several stations at the facility to provide relief for the employees, and spent time spiking the incinerator with a mixture of toluene and polychlorinated biphenyls (PCBs).

Environmental Site Assessments

ESAs, Various Clients, Arizona, New Mexico, Wisconsin, Oregon
Environmental Scientist. Over 5 years experience performing ESAs for the various clients, which included vacant land, sand and gravel operations, former gasoline stations, manufacturing facilites, large multi-tenant properties, etc. Performed the report preparation activities, budget estimating and tracking, client and regulatory agency interactions.

Asbestos

Asbestos Inspections, Various Clients, Arizona, Oregon
Environmental Scientist. Over 3 years experience performing asbestos inspections for the various clients, which included residential, retail, commercial, and manufacturing facilities. Performed all phases of sampling, report preparation, and removal cost estimating.

Environmental Health and Safety

Health and Safety Coordinator, TerraNext, Phoenix, Arizona
Health and Safety Coordinator. Coordinated and scheduled training classes and Occupational Safety and Health Administration (OSHA) medical monitoring requirements. Acted as Health and Safety Officer on several job sites. Prepared the health and safety plans for all TerraNext projects, for the Phoenix office of TerraNext.

Emergency Response Incident, Southern Pacific Railroad, Wellton, Arizona
Health and Safety Officer. Health and Safety Officer for a 46 car train derailment in Wellton, Arizona. Six freight cars containing latex paint, oil-based stain, and oil-based wood sealants were ripped opened and spilled over a one-half mile area during the derailment. Most of the oil-based material was pumped into a vacuum truck, and the remaining product was excavated, transferred into roll-offs and end dump trucks, and transported to a treatment, storage, and disposal (TSD) facility. Also, approximately 1,300 tons of latex paint and debris impacted soil was transported to the local landfill. Completed/coordinated the Special Waste Manifests and the Bills of Lading for transporting the impacted soil. Managed a work detail to hand pick railroad tie debris away from the main line.

Regulatory Compliance/Site Audits

Facility Audit, Ceramic Parts Manufacturer, Tucson, Arizona
Technical Support. Provided technical support in a safety process audit for a ceramic parts manufacturer. The facility installed a new production process utilizing tungsten/copper and required a health and safety audit to develop a compliance program for the new process. The audit encompassed health and safety issues concerning the employees; storage and disposal of the waste products derived from the process; and wastewater discharge permit requirements. Authorized the employee health and safety section of the report to the client describing the possible ill-effects of the materials used in the new process and how to apply first aid in the event of overexposure.

Facility Audit, Defense Contractor, Phoenix, Arizona
Technical Support. Aided in the chemical audit of a major defense contractor who manufacturers propellants. The chemical audit was conducted to provide the contractor with the emission rates of the various processes at the facility in preparation of an air permit. Responsible for gathering Material Safety Data Sheets (MSDSs) for all the chemicals used at the facility. Also, compiled usage quantities for each of the chemicals used in the various processes at the facility (gathered from personal interviews and purchasing records), and entered the data into tables to mitigate calculating the emissions rate.

Facility Audit, Copper Mining Operation, Phoenix, Arizona
Technical Support. Aided in the audit of hazardous and non-hazardous materials, substances, and wastes used and formerly used at a copper mine.

The audit was conducted to provide the client with a list, by building, of potential issues which would require further handling prior to demolition of the building. Responsible for compiling the list, supervising the removal of the listed issues from each building, and supervising the brokering efforts required to properly dispose of the collected wastes.

Hazardous Material Management, Copper Mining Operation, Phoenix, Arizona
Environmental Scientist. Aided in the audit of hazardous and non-hazardous materials, substances, and wastes used and formerly used at a copper mine. The audit was conducted to provide the client with a list, by building, of potential issues which would require further handling prior to demolition of the building. Responsible for compiling the list, supervising the removal of the listed issues from each building, and supervising the brokering efforts required to properly dispose of the collected wastes.

APPENDIX B

BIOLOGICAL ASSESSMENT

BIOLOGICAL ASSESSMENT

FOREPAUGH MINERAL PIT
WEST OF WICKENBURG
US HIGHWAY 60
BETWEEN MILE POST NOS. 97 AND 98

MARICOPA COUNTY, ARIZONA

DECEMBER 8, 2000

Prepared for:

Maricopa County Department of Transportation
Planning Division
2901 West Durango Street
Phoenix, Arizona 85009

Prepared by:

Brown and Caldwell
3636 North Central Avenue, Suite 200
Phoenix, Arizona 85012
(602) 222-4444

Brown and Caldwell Project No. 19422

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF ATTACHMENTS

ATTACHMENT

1.0 INTRODUCTION

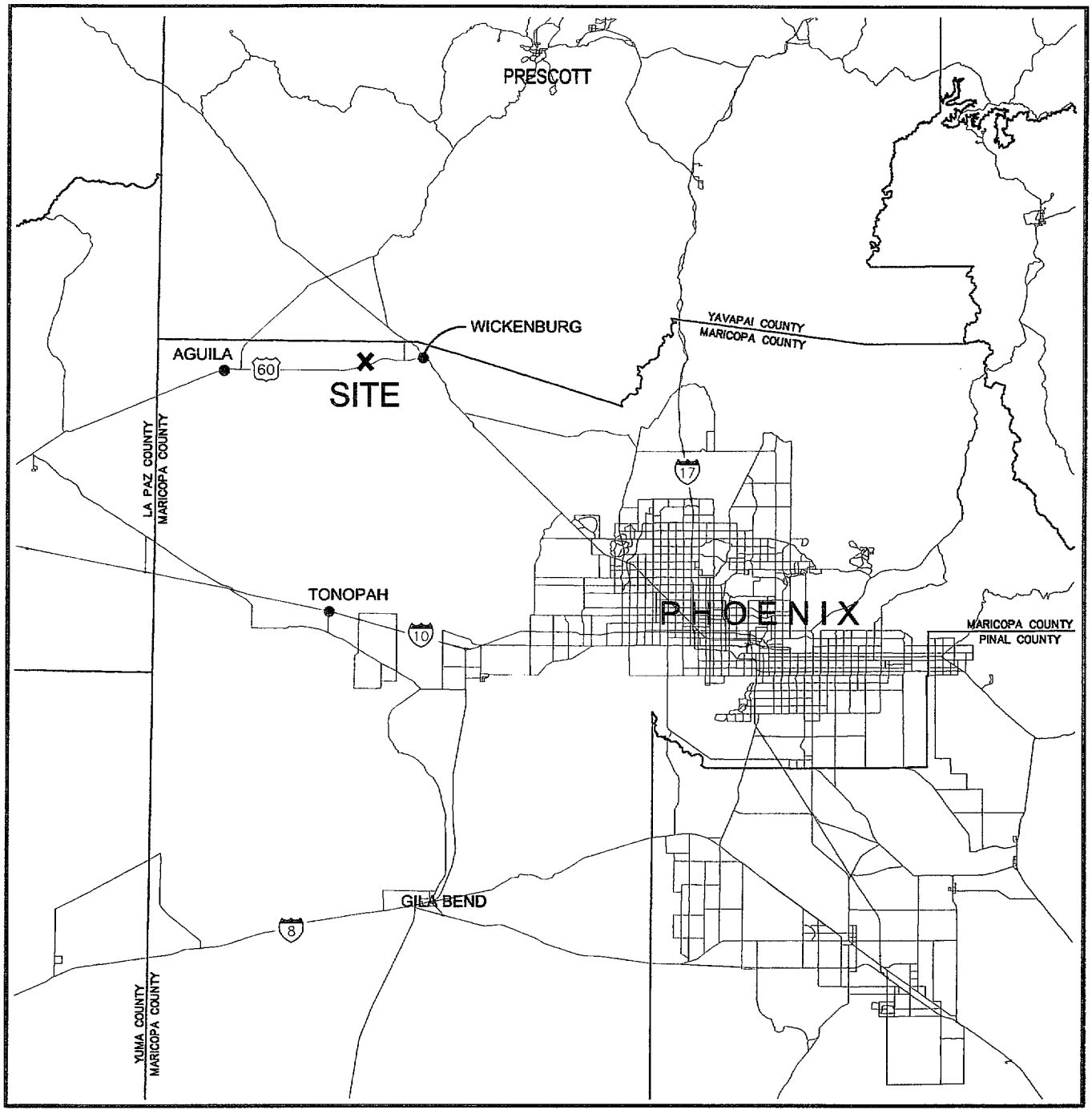
This Biological Assessment (BA) follows the general format provided by the Arizona Department of Transportation (ADOT). Ms. Janice Petticrew of Brown and Caldwell conducted a Site visit to the Forepaugh Mineral Pit (Site) to complete the BA on August 25, 2000.

2.0 SITE LOCATION

The Forepaugh Mineral Pit is located approximately 9 miles west of Wickenburg, along the north side of United States (US) Highway 60, between mile post markers 97 and 98 in Maricopa County, Arizona (Figure 1). The size of the site is approximately 40 acres with a legal description as follows:

> Southwest Quarter of the Southeast Quarter of Section 13, Township 7 North, Range 7 West, of the Gila and Salt River Base Line and Meridian, Maricopa County, Arizona

The Site is presently known as the Forepaugh Mineral Pit by the Maricopa County Department of Transportation (MCDOT) due to its proximity to Forepaugh Hill. Geographic coordinates are approximately West Longitude 112 degrees, 56 minutes, 10 seconds and North Latitude 33 degrees, 56 minutes, 40 seconds.



0 10 20

APPROXIMATE SCALE IN MILES

Figure 1

SITE VICINITY MAP
FOREPAUGH MINERAL PIT
WEST OF WICKENBURG
MARICOPA COUNTY, ARIZONA

BROWN AND CALDWELL
Phoenix, Arizona

P:\Cad\ES\MARICOPA\9422\F9422004.dwg (1=1) 12-05-00 JCollier

3.0 SITE AND PROJECT DESCRIPTION

The Site is undeveloped land currently used for livestock grazing. The Site was formerly used for the extraction and processing of sand and gravel material for aggregate by the Arizona Department of Transportation, and has not been in operation for some years. Currently, there are no facilities located on the Site except for a livestock corral located south of the former gravel pit.

The Site consists of primarily undisturbed native desert owned by the Arizona State Land Department (ASLD). Adjoining properties on all four boundaries are also undisturbed native desert land.

MCDOT has an application submitted to the ASLD to obtain a lease for the Site. MCDOT plans to use the Site as a material source pit to supply aggregate and soil for road repair work in remote areas of Maricopa County. The operation will only involve excavating and hauling of material by truck, and no crushing or screening operations will occur. MCDOT does not currently plan on establishing structures on the Site.

4.0 SITE PROJECT AREA

The general topography of the Site is level, gently sloping to the northwest. The elevation of the Site is approximately 2,560 feet above mean sea level (amsl). The biotic community in the project area was likely the Lower Colorado River Valley subdivision of Sonoran Desertscrub, characterized by creosotebush (*Larrea tridentata*), white bursage (*Ambrosia dumosa*), ocotillo (*Fouquieria spendens*), and paloverde (*Cercidium* spp.) (Brown 1994.)

Currently, no improvements to the Site exist except for a livestock corral and some fences, which support the livestock grazing activities. Because of the lack of improvement at the Site and in the near vicinity, areas of naturally occurring, native vegetation occur throughout the project area. Some of the plant species identified by the Arizona Department of Agriculture are creosotebush (*Larrea tridentata*), foothills paloverde (*Cercidium microphyllum*), cholla, prickly pear cacti (*Opuntia* spp.), and yucca (*Yucca* spp.).

5.0 SPECIES IDENTIFICATION

A total of 12 plant and animal species are on the US Fish and Wildlife Service (USFWS) list of federally endangered and threatened species for Maricopa County (10 endangered and two threatened) included in Appendix A. The most current species list was obtained and reviewed from the USFWS Internet website on August 17, 2000, at http://ifw2es.fws.gov/arizona/. In addition, the Arizona Game and Fish Department (AGFD) was contacted and provided the list of Arizona special status species for the project vicinity which is included in Appendix B.

Table 1 identifies threatened, endangered, and special status species in Maricopa County. Table 1 also analyzes the potential for the species occurrence within the project area at the Site.

TABLE 1. MARICOPA COUNTY, ARIZONA THREATENED, ENDANGERED, AND SPECIAL STATUS SPECIES

SPECIES	STATUS	POTENTIAL FOR OCCURRENCE	BASIS FOR POTENTIAL OCCURRENCE DETERMINATION
BIRDS			
American Peregrine Falcon (*Falco peregrinus anatum*)	Arizona Special Status Species	None	Lack of suitable habitat and no sightings of species in the vicinity of the Site according to AGFD.
Bald Eagle (*Haliaeetus leucocephalus*)	Threatened	None	Lack of suitable habitat (large trees or cliffs near water). (64 CFR 36454.)
Black-Bellied Whistling Duck (*Dendrocygna autumnalis*)	Arizona Special Status Species	None	Lack of suitable habitat and no sightings of species in the vicinity of the Site according to AGFD.
Cactus Ferruginous Pygmy-Owl (*Glaucidium brasilianum cactorum*)	Arizona Special Status Species	None	Lack of suitable habitat and no sightings of species in the vicinity of the Site according to AGFD.
Common Black-Hawk (*Buteogallus anthracinus*)	Arizona Special Status Species	None	Lack of suitable habitat and no sightings of species in the vicinity of the Site according to AGFD.
Great Egret (*Ardea alba*)	Arizona Special Status Species	None	Lack of suitable habitat and no sightings of species in the vicinity of the Site according to AGFD.
Mexican Spotted Owl (*Strix occidentalis lucida*)	Threatened	None	Lack of suitable habitat (canyons and dense forests). Elevation range (4,100 to 9,000 feet).

TABLE 1. MARICOPA COUNTY, ARIZONA THREATENED, ENDANGERED, AND SPECIAL STATUS SPECIES

SPECIES	STATUS	POTENTIAL FOR OCCURRENCE	BASIS FOR POTENTIAL OCCURRENCE DETERMINATION
Mississippi Kite (*Ictinia mississippiensis*)	Arizona Special Status Species	None	Lack of suitable habitat and no sightings of species in the vicinity of the Site according to AGFD.
Snowy Egret (*Egretta thula*)	Arizona Special Status Species	None	Lack of suitable habitat and no sightings of species in the vicinity of the Site according to AGFD.
Southwestern Willow Flycatcher (*Empidonax trailii extimus*)	Endangered	None	Lack of suitable habitat (complex, multi-story cottonwood/willow and tamarisk vegetation communities along rivers and streams).
Western Burrowing Owl (*Athene cunicularia hypugaea*)	Arizona Special Status Species	None	Lack of suitable habitat and no sightings of species in the vicinity of the Site according to AGFD.
Western Least Bittern (*Ixobrychus exilis hesperis*)	Arizona Special Status Species	None	Lack of suitable habitat and no sightings of species in the vicinity of the Site according to AGFD.
Western Snowy Plover (*Charadrius alexandrinus nivosus*)	Arizona Special Status Species	None	Lack of suitable habitat and no sightings of species in the vicinity of the Site according to AGFD.
Western Yellow-Billed Cuckoo (*Coccyzus americanus occidentalis*)	Arizona Special Status Species	None	Lack of suitable habitat and no sightings of species in the vicinity of the Site according to AGFD.
Yuma Clapper Rail (*Rallus longirostris yumaensis*)	Endangered	None	Outside known geographic range. Lack of suitable habitat.
FISHES			
Bonytail Chub (*Gila elegans*)	Endangered	None	Lack of suitable habitat (aquatic habitat).
Desert Pupfish (*Cyprinodon macularius*)	Endangered	None	Lack of suitable habitat (shallow springs and small streams)
Desert Sucker (*Catostomus clarki*)	Arizona Special Status Species	None	Lack of suitable habitat and no sightings of species in the vicinity of the Site according to AGFD.
Gila (Yaqui) Topminnow (*Poeciliopsis occidentalis occidentalis*)	Endangered	None	Lack of suitable habitat (small streams, springs, and cienigas vegetated shallows). Outside known geographic range (outside extremely limited distribution of the species).

TABLE 1. MARICOPA COUNTY, ARIZONA THREATENED, ENDANGERED, AND SPECIAL STATUS SPECIES

SPECIES	STATUS	POTENTIAL FOR OCCURRENCE	BASIS FOR POTENTIAL OCCURRENCE DETERMINATION
Gila Chub (*Gila intermedia*)	Arizona Special Status Species	None	Lack of suitable habitat and no sightings of species in the vicinity of the Site according to AGFD.
Longfin Dace (*Agosia chrysogaster*)	Arizona Special Status Species	None	Lack of suitable habitat and no sightings of species in the vicinity of the Site according to AGFD.
Razorback Sucker (*Xyrauchen texanus*)	Endangered	None	Lack of suitable habitat (aquatic habitat). Outside known geographic range.
Roundtail Chub (*Gila rubusta*)	Arizona Special Status Species	None	Lack of suitable habitat and no sightings of species in the vicinity of the Site according to AGFD.
Sonora Sucker (*Catostomus insignis*)	Arizona Special Status Species	None	Lack of suitable habitat and no sightings of species in the vicinity of the Site according to AGFD.
Speckled Dace (*Rhinichthys osculus*)	Arizona Special Status Species	None	Lack of suitable habitat and no sightings of species in the vicinity of the Site according to AGFD.
INVERTEBRATES			
Maricopa Tiger Beetle (*Cicindela oregona maricopa*)	Arizona Special Status Species	None	Lack of suitable habitat and no sightings of species in the vicinity of the Site according to AGFD.
Squaw Peak Talussnail (*Sonorella allynsmithi*)	Arizona Special Status Species	None	Lack of suitable habitat and no sightings of species in the vicinity of the Site according to AGFD.
MAMMALS			
California Leaf-Nosed Bat (*Macrotus californicus*)	Arizona Special Status Species	None	Lack of suitable habitat and no sightings of species in the vicinity of the Site according to AGFD.
Cave Myotis (*Myotis velifer*)	Arizona Special Status Species	None	Lack of suitable habitat and no sightings of species in the vicinity of the Site according to AGFD.
Greater Western Mastiff Bat (*Eumops perotis californicus*)	Arizona Special Status Species	None	Lack of suitable habitat and no sightings of species in the vicinity of the Site according to AGFD.
Lesser Long-Nosed Bat (*Leptonycteris curasoae yerbabuenae*)	Endangered	None	Lack of suitable habitat (saguaro and other columnar cacti for foraging, caves, and tunnels for roosting/maternity).
Pale Townsend's Big-Eared Bat (*Plecotus townsendii pallescens*)	Arizona Special Status Species	None	Lack of suitable habitat and no sightings of species in the vicinity of the Site according to AGFD.

TABLE 1. MARICOPA COUNTY, ARIZONA THREATENED, ENDANGERED, AND SPECIAL STATUS SPECIES

SPECIES	STATUS	POTENTIAL FOR OCCURRENCE	BASIS FOR POTENTIAL OCCURRENCE DETERMINATION
Pocketed Free-Tailed Bat (*Nyctinomops femorosaccus*)	Arizona Special Status Species	None	Lack of suitable habitat and no sightings of species in the vicinity of the Site according to AGFD.
Sonoran Pronghorn (*Antilocarpa americana sonoriensis*)	Endangered	None	Outside known geographic range.
Western Red Bat (*Lasiurus blossevillii*)	Arizona Special Status Species	None	Lack of suitable habitat and no sightings of species in the vicinity of the Site according to AGFD.
Yuma Myotis (*Myotis yumanensis*)	Arizona Special Status Species	None	Lack of suitable habitat and no sightings of species in the vicinity of the Site according to AGFD.
PLANTS AND CACTI			
Alamos Deer Vetch (*Lotus alamosanus*)	Arizona Special Status Species	None	Lack of suitable habitat and outside geographic range.
Arizona Agave (*Agave arizonica*)	Endangered	None	Lack of suitable habitat (steep, rocky slopes in transition zone between oak-juniper woodland and mountain mahogany-oak scrub). Elevation range (3,000 to 6,000 feet).
Arizona Cliffrose (*Purshia subintegra*)	Endangered	None	Lack of suitable habitat (white soils of tertiary limestone lakebed deposits). Geographic range (outside extremely limited distribution of the species).
Arizona Hedgehog Cactus (*Echinocereus triglochidiatus arizonicus*)	Endangered	None	Lack of suitable habitat (ecotone between interior chaparral and Madrean evergreen forest). Outside elevation range (3,700 to 5,200 feet)
Arizona Rosewood (*Vauquelinia californica ssp. sonorensis*)	Arizona Special Status Species	None	Lack of suitable habitat and outside geographic range.
Eastwood Alum Root (*Heuchera eastwoodiae*)	Arizona Special Status Species	None	Lack of suitable habitat and outside geographic range.
Fish Creek Fleabane (*Erigeron piscaticus*)	Arizona Special Status Species	None	Lack of suitable habitat and outside geographic range.
Flannel Bush (*Fremontodendron californicum*)	Arizona Special Status Species	None	Lack of suitable habitat and outside geographic range.

TABLE 1. MARICOPA COUNTY, ARIZONA THREATENED, ENDANGERED, AND SPECIAL STATUS SPECIES

SPECIES	STATUS	POTENTIAL FOR OCCURRENCE	BASIS FOR POTENTIAL OCCURRENCE DETERMINATION
Hohokam Agave (*Agave murpheyi*)	Arizona Special Status Species	None	Lack of suitable habitat and outside geographic range.
Kofa Barberry (*Berberis harrisoniana*)	Arizona Special Status Species	None	Lack of suitable habitat and outside geographic range.
Mapleleaf False Snapdragon (*Mabrya acerifolia*)	Arizona Special Status Species	None	Lack of suitable habitat and outside geographic range.
Pima Indian Mallow (*Abutilon parishii*)	Arizona Special Status Species	None	Lack of suitable habitat and outside geographic range.
Ripley Wild-Buckwheat (*Eriogonum ripleyi*)	Arizona Special Status Species	None	Lack of suitable habitat and outside geographic range.
Rish Creek Rock Daisy (*Perityle saxicola*)	Arizona Special Status Species	None	Lack of suitable habitat and outside geographic range.
Straw-Top Cholla (*Opuntia echinocarpa*)	Arizona Special Status Species	None	Lack of suitable habitat and outside geographic range.
Tomamoc Globeberry (*Tumamoca macdougalii*)	Arizona Special Status Species	None	Lack of suitable habitat and outside geographic range.
Tonto Basin Agave (*Agave delamateri*)	Arizona Special Status Species	None	Lack of suitable habitat and outside geographic range.
Toumey Agave (*Agave toumeyana var. bella*)	Arizona Special Status Species	None	Lack of suitable habitat and outside geographic range.
Varied Fishhook Cactus (*Mammillaria viridiflora*)	Arizona Special Status Species	None	Lack of suitable habitat and outside geographic range.
REPTILES AND AMPHIBIANS			
Arizona Skink (*Eumeces gilberti arizonensis*)	Arizona Special Status Species	None	Lack of suitable habitat and no sightings of species in the vicinity of the Site according to AGFD.
Arizona Toad (*Bufo microscaphus microscaphus*)	Arizona Special Status Species	None	Lack of suitable habitat and no sightings of species in the vicinity of the Site according to AGFD.
Desert Rosy Boa (*Charina trivirgata gracia*)	Arizona Special Status Species	None	Lack of suitable habitat and no sightings of species in the vicinity of the Site according to AGFD.

TABLE 1. MARICOPA COUNTY, ARIZONA THREATENED, ENDANGERED, AND SPECIAL STATUS SPECIES

SPECIES	STATUS	POTENTIAL FOR OCCURRENCE	BASIS FOR POTENTIAL OCCURRENCE DETERMINATION
Great Plains Narrowmouth Toad (*Gastrophryne olivacea*)	Arizona Special Status Species	None	Lack of suitable habitat and no sightings of species in the vicinity of the Site according to AGFD.
Lowland Leopard Frog (*Rana yavapaiensis*)	Arizona Special Status Species	None	Lack of suitable habitat and no sightings of species in the vicinity of the Site according to AGFD.
Maricopa Leaf-nose Snake (*Phyllorhynchus brownilLucidus*)	Arizona Special Status Species	None	Lack of suitable habitat and no sightings of species in the vicinity of the Site according to AGFD.
Mexican Garter Snake (*Thamnophis eques megalops*)	Arizona Special Status Species	None	Lack of suitable habitat and no sightings of species in the vicinity of the Site according to AGFD.
Redback Whiptail (*Cnemidophorus burti xanthonotus*)	Arizona Special Status Species	None	Lack of suitable habitat and no sightings of species in the vicinity of the Site according to AGFD.
Sonoran Desert Tortoise (*Gopherus agassizii*)	Species of Concern; Wildlife of Special Concern in Arizona	May occur	Isolated limited habitat is present within the former pit boundaries. Grasses and cacti are present in the former pit area, surrounded by creosote flats. Visible indications of the tortoise were not observed at the site in the field.

6.0 SPECIES EVALUATION AND DETERMINATION OF EFFECTS

The Site was a former aggregate quarry that has not been in operation for several years. Viable habitat for the listed threatened or endangered (T&E) species in the Endangered Species Act (ESA) does not exist at the Site.

Listed species were evaluated for their potential to occur or be affected by activities within the project area. None of the 12 T&E species evaluated for this BA were considered. Based on known habitat requirements and geographic ranges, it was determined that there is no potential for these species to occur in the project area. Only the Sonoran Desert Tortoise, Wildlife of Special Concern, has the potential to occur in the vicinity.

Sonoran Desert Tortoise

This species is listed by the USFWS as a "Species of Concern" and designated as a "Wildlife of Special Concern in Arizona" by the AGFD. The Desert Tortoise ranges from southeastern California, the southern tip of Nevada, the extreme southwestern corner of Utah, through the western and southern parts of Arizona, and south to northern Sinaloa, Mexico. The Colorado River divides genetically distinct populations of the Desert Tortoise. On August 4, 1989, the USFWS listed the Mohave population of the Desert Tortoise as endangered under emergency listing procedures. The USFWS ruled that listing of the Sonoran Desert Tortoise population was not warranted (FWS 1991).

South and east of the Colorado River, Desert Tortoises occur primarily on rocky slopes and bajadas of Mohave desertscrub and the Arizona Upland and Lower Colorado subdivisions of the Sonoran Desert. They most often occur in paloverde-mixed cacti associations but range from about 155 meters in the Mohave desertscrub to semi-desert grassland and interior chaparral at about 1,615 meters. In the Arizona Upland subdivision, boulders, outcrops, and natural cavities are important substrate components of the habitat as shelter sites. Most often, Desert Tortoises excavate burrows in deeper soils at the base of boulders and rock outcrops. Caliche caves in washes and incised cut banks are also used for shelter sites, especially in the Lower Colorado River Valley Subdivision. Shelter sites are rarely found in shallow soils.

Desert Tortoise eat a variety of plants including fresh winter and summer annual vegetation, cured annuals, plant litter, perennial plants, and feces of vertebrates including those of other Desert Tortoises. The major foods consumed by the Sonoran Desert Tortoise are forbs in spring, forbs and shrubs in summer, and shrubs in autumn.

On January 1, 1988, AGFD prohibited the take of Desert Tortoises from the wild because it considers the Desert Tortoise a species of special concern (AGFD 1996).

Potential of Occurrence

Although species-specific surveys were not performed as part of this assessment, the results of this evaluation of the Sonoran Desert Tortoise indicate that there is a low potential for the occurrence of this species at the Site. It is a low potential for occurrence because it is a poor quality of habitat surrounding the Site (lack of adequate forbs for food and hill slopes for burrows) for some distance in all directions and heavy use of the area for livestock grazing for many years. Cattle grazing tends to reduce the potential for Desert Tortoises to cohabit the same general areas (AGFD 1996). However, the potential exists for its presence in the area because the existence of Desert Tortoises has been documented within 5 miles of the Site by AGFD (Attachment B).

Determination of Effect

In general, the deepening and expansion of the excavation within the boundaries of the Site, and the hauling of materials on roads and placement on stockpiles, may affect but is not likely to adversely affect the Sonoran Desert Tortoise based on the potential of occurrence discussion above.

However, since there is some potential for occurrence, Brown and Caldwell recommends that a Management Plan for the handling of Sonoran Desert Tortoise encountered on the Site be prepared and implemented for the mining activities at the Site. Guidelines for handling Sonoran Desert Tortoises provided by AGFD have been included as Attachment C for use in preparation of the plan.

7.0 REFERENCES

Arizona Game and Fish Department (AGFD), August 17 and September 21, 2000. Endangered Species List for Maricopa County, Arizona. Written Correspondence.

AGFD Arizona Interagency Desert Tortoise Team. December 1996. *Management Plan for the Sonoran Desert Population of the Desert Tortoise in Arizona.*

Brown, D.E. (Ed). 1994. Biotic Communities: Southwestern United States and Northwestern Mexico. University of Utah Press: Salt Lake City.

US Fish and Wildlife Service, August 17, 2000. Endangered Species List for Maricopa County, Arizona. Internet Website at http://ifw2es.fws.gov/arizona/.

APPENDIX A

US FISH AND WILDLIFE SERVICE
ENDANGERED SPECIES LIST
FOR MARICOPA COUNTY

U.S. Fish & Wildlife Service

Endangered Species List

Back to Start

List of species by county for Arizona:

Counties Selected: Maricopa

Select one or more counties from the following list to view a county list:

Apache
Cochise
Coconino
Gila
Graham

View County List

Maricopa County

Common Name	Scientific Name	Listing Status
Arizona agave	*Agave arizonica*	Endangered
Arizona cliffrose	*Purshia subintegra*	Endangered
Arizona hedgehog cactus	*Echinocereus triglochidiatus arizonicus*	Endangered
Desert pupfish	*Cyprinodon macularius*	Endangered
Gila topminnow	*Poeciliopsis occidentalis occidentalis*	Endangered
Lesser long-nosed bat	*Leptonycteris curasoae yerbabuenae*	Endangered
Mexican spotted owl	*Strix occidentalis lucida*	Threatened
Razorback sucker	*Xyrauchen texanus*	Endangered
Sonoran pronghorn	*Antilocapra americana sonoriensis*	Endangered
Southwestern willow flycatcher	*Empidonax traillii extimus*	Endangered
Yuma clapper rail	*Rallus longirostris yumanensis*	Endangered

APPENDIX B

ARIZONA GAME AND FISH DEPARTMENT
SPECIAL STATUS SPECIES INFORMATION

THE STATE OF ARIZONA
GAME AND FISH DEPARTMENT
2221 WEST GREENWAY ROAD, PHOENIX, AZ 85023-4399
(602) 942-3000 • WWW.AZGFD.COM

Project Evaluation Program, Habitat Branch
Heritage Data Management System (HDMS) Information

Project Description: Brown and Caldwell; Site near Wickenburg
Township 7 North, Range 7 West, Section 13

9/19/00

The Department's HDMS has been accessed and current records indicate that the special status species listed below has been documented in the project vicinity (within 5 miles). Status definitions are included as an attachment to this form letter.

COMMON NAME	SCIENTIFIC NAME	ESA	USFS	BLM	WSCA	NPL
SONORAN DESERT TORTOISE	GOPHERUS AGASSIZII (SONORAN POPULATION)	SC			WC	

CRITICAL HABITAT: None

At this time, the Department's comments are limited to the special status species information provided above. This correspondence does not represent the Department's evaluation of impacts to wildlife or wildlife habitat associated with activities occurring in the subject area. If you have any questions regarding this special status species information, please contact Aimee MacIlroy, Project Evaluation Program Specialist at (602) 789-3593.

cc: Russ Engel, Habitat Program Manager, Region IV

AGFD # 8-18-00(05)

Attachment

STATUS DEFINITIONS
ARIZONA GAME AND FISH DEPARTMENT (AGFD)
HERITAGE DATA MANAGEMENT SYSTEM (HDMS)

FEDERAL US STATUS

ESA Endangered Species Act (1973 as amended)
US Department of Interior, Fish and Wildlife Service **(http://ifw2es.fws.gov/Arizona/)**

Listed
- **LE** Listed Endangered: imminent jeopardy of extinction.
- **LT** Listed Threatened: imminent jeopardy of becoming Endangered.

Proposed for Listing
- **PE** Proposed Endangered.
- **PT** Proposed Threatened.

Candidate (Notice of Review: 1996)
- **C** Candidate. Species for which USFWS has sufficient information on biological vulnerability and threats to support proposals to list as Endangered or Threatened under ESA. However, proposed rules have not yet been issued because such actions are precluded at present by other listing activity.
- **SC** Species of Concern. The terms "Species of Concern" or "Species at Risk" should be considered as terms-of-art that describe the entire realm of taxa whose conservation status may be of concern to the US Fish and Wildlife Service, but neither term has official status (currently all former C2 species).

USFS US Forest Service (1999 Animals, 1999 Plants)
US Department of Agriculture, Forest Service, Region 3
(http://www.fs.fed.us/r3/resources/wildlife.html)

- **S** Sensitive: those taxa occurring on National Forests in Arizona which are considered sensitive by the Regional Forester.

BLM US Bureau of Land Management (2000 Animals, 2000 Plants)
US Department of Interior, Bureau of Land Management, Arizona State Office **(www.az.blm.gov)**

- **S** Sensitive: those taxa occurring on BLM Field Office Lands in Arizona which are considered sensitive by the Arizona State Office.

STATE STATUS

NPL Arizona Native Plant Law (1993)
Arizona Department of Agriculture **(http://agriculture.state.az.us/PSD/nativeplants.htm)**

- **HS** Highly Safeguarded: no collection allowed.
- **SR** Salvage Restricted: collection only with permit.

WSCA Wildlife of Special Concern in Arizona (1996 in prep.)
Arizona Game and Fish Department **(www.azgfd.com)**

- **WC** Wildlife of Special Concern in Arizona. Species whose occurrence in Arizona is or may be in jeopardy, or with known or perceived threats or population declines, as described by the Arizona Game and Fish Department's listing of Wildlife of Special Concern in Arizona (WSCA, in prep). Species indicated on printouts as WC are currently the same as those in Threatened Native Wildlife in Arizona (1988).

APPENDIX C

ARIZONA GAME AND FISH DEPARTMENT GUIDLELINES FOR HANDLING SONORAN DESERT TORTOISES

GUIDELINES FOR HANDLING SONORAN DESERT TORTOISES ENCOUNTERED ON DEVELOPMENT PROJECTS

Arizona Game and Fish Department
Revised January 17, 1997

The Arizona Game and Fish Department (Department) has developed the following guidelines to reduce potential impacts to desert tortoises, and to promote the continued existence of tortoises throughout the state. These guidelines apply to short-term and/or small-scale projects, depending on the number of affected tortoises and specific type of project.

Desert tortoises of the Sonoran population are those occurring south and east of the Colorado River. Tortoises encountered in the open should be moved out of harm's way to adjacent appropriate habitat. If an occupied burrow is determined to be in jeopardy of destruction, the tortoise should be relocated to the nearest appropriate alternate burrow or other appropriate shelter, as determined by a qualified biologist. Tortoises should be moved less than 48 hours in advance of the habitat disturbance so they do not return to the area in the interim. Tortoises should be moved quickly, kept in an upright position at all times and placed in the shade. Separate disposable gloves should be worn for each tortoise handled to avoid potential transfer of disease between tortoises. Tortoises must not be moved if the ambient air temperature exceeds 105 degrees fahrenheit unless an alternate burrow is available or the tortoise is in imminent danger.

A tortoise may be moved up to two miles, but no further than necessary from its original location. If a release site, or alternate burrow, is unavailable within this distance, and ambient air temperature exceeds 105 degrees fahrenheit, the Department should be contacted to place the tortoise into a Department-regulated desert tortoise adoption program. Tortoises salvaged from projects which result in substantial permanent habitat loss (e.g. housing and highway projects), or those requiring removal during long-term (longer than one week) construction projects, will also be placed in desert tortoise adoption programs. *Managers of projects likely to affect desert tortoises should obtain a scientific collecting permit from the Department to facilitate temporary possession of tortoises.* Likewise, if large numbers of tortoises (>5) are expected to be displaced by a project, the project manager should contact the Department for guidance and/or assistance.

Please keep in mind the following points:

- These guidelines do not apply to the Mohave population of desert tortoises (north and west of the Colorado River). Mohave desert tortoises are specifically protected under the Endangered Species Act, as administered by the U.S. Fish and Wildlife Service.

- These guidelines are subject to revision at the discretion of the Department. We recommend that the Department be contacted during the planning stages of any project that may affect desert tortoises.

- Take, possession, or harassment of wild desert tortoises is prohibited by state law. Unless specifically authorized by the Department, or as noted above, project personnel should avoid disturbing any tortoise.

RAC:NLO:rc

APPENDIX C

ARIZONA DEPARTMENT OF AGRICULTURE
NATIVE PLANT SURVEY

SHELDON R. JONES
Director

JOHN CARRAVETTA
Associate Director

Arizona Department of Agriculture

1688 West Adams, Phoenix, Arizona 85007
(602) 542-4373 Fax (602)542-0999

PLANT SERVICES DIVISION

ARIZONA NATIVE PLANT SURVEY RESPONSE

DATE 8-29-00

RE: NPS NO. 00-001-03, PROJECT NO. 19422

DEAR: Janice Petticrew

The Department of Agriculture has completed a native plant survey of the above referenced project/application number, and the results are as follows:

( ) There are no protected native plants on the site.

( ) The plants on the site are of low quality and salvage is optional.

( ) The terrain is too rough to make salvage of the plants possible.

(X) The plants or a portion of the plants are accessible and are of average or better quality, and we recommend plant salvage.

VARIETY AND NUMBER OF PLANTS

SAGUAROS										
0-3'	3-6'	6-10'	10-15'	OVER 15'	CREST	INACC	UN SALVAGE	AGAVE	BARREL	CHOLLA
										9

HEDGE	JOSHUA TREE	OCOTILLO	PIN CUSHION	PRICKLY PEAR	MESQUITE	IRON WOOD	PALO VERDE	MISC. YUCCA SPP
				26	107		1	29

Sincerely,

cc: Program Manager

ADA-PSD 0002
12/99

SHELDON R. JONES
Director

G. JOHN CARAVETTA
Associate Director

Arizona Department of Agriculture

1688 West Adams, Phoenix, Arizona 85007
(602) 542-4373 FAX (602) 542-0999

PLANT SERVICES DIVISION

August 30, 2000

Mr. Gary Slusher, Geologist
Arizona State Land Department
1616 West Adams Street
Phoenix, AZ 85007

RE: **Application #: 04-105556, 04-105774 & 04-105861**

Dear Mr. Slusher:

The Arizona Department of Agriculture has reviewed the referenced applications dated August 23, 2000.

Based on the information provided, the sand and gravel operation on SLD Application # 04-105556 is not expected to impact protected native plants. Any protected native plants found on site during the operation are to be avoided or transplanted.

The Department recommends that the protected plants that occur within the sand and gravel operation on SLD Application #'s 04-105774 and 04-105861 be removed, set aside, and replanted. If this method is not possible, then allow professional salvagers to commercially harvest the plants. Permits and tags must first be obtained from the Department before any plants leave the project site.

In addition, the following general recommendations are suggested:

- Minimize the remove or destruction of existing vegetation to the greatest extent possible.
- Salvage and/or replant (as stated above) protected plants including cacti and mature trees.

We appreciate the opportunity to comment on the proposals. Please contact me if you have any questions concerning the above comments. I can be reached at 602/542-3292.

Sincerely,

James McGinnis
Native Plant Law Specialist

APPENDIX D

ENVIRONMENTAL DATA RESOURCES, INC.
NEPA CHECK REPORT

EDR NEPACheck™

Forepaugh Mineral Pit
West Highway 60
Wickenburg, AZ 85390

Inquiry Number: 0527141.7r

August 10, 2000

Environmental Data Resources, Inc.
an edr company

The Source For Environmental Risk Management Data

3530 Post Road
Southport, Connecticut 06490

Nationwide Customer Service

Telephone: 1-800-352-0050
Fax: 1-800-231-6802
Internet: www.edrnet.com

TABLE OF CONTENTS

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

EDR NEPACheck(TM) DESCRIPTION

The National Environmental Policy Act of 1969 (NEPA) requires that Federal agencies include in their decision-making processes appropriate and careful consideration of all environmental effects and actions, analyze potential environmental effects of proposed actions and their alternatives for public understanding and scrutiny, avoid or minimize adverse effects of proposed actions, and restore and enhance environmental quality as much as possible.

The EDR NEPACheck provides information which may be used, in conjunction with additional research, to determine whether a proposed site or action will have significant environmental effect.

The report provides maps and data for the following NEPA checklist items for geographic areas which are available in electronic format:

Natural Areas Map	**Regulation**
• Federal Lands Data:	
- Officially designated wilderness areas	47 CFR 1.1307(1)
- Officially designated wildlife preserves, sanctuaries and refuges	47 CFR 1.1307(2)
- Wild and scenic rivers	40 CFR 6.302(e)
- Fish and Wildlife	40 CFR 6.302
• Threatened or Endangered Species, Fish and Wildlife, Critical Habitat Data	47 CFR 1.1307(3); 40 CFR 6.302
Historic Places Map	
• National Register of Historic Places	47 CFR 1.1307(4); 40 CFR 6.302
Flood Plain Map	
• National Food Plain Data	47 CFR 1.1307(6); 40 CFR 6.302
Wetlands Map	
• National Wetlands Inventory Data	47 CFR 1.1307(7); 40 CFR 6.302
FCC & FAA Map	
• FCC antenna/tower sites, AM Radio Towers, FAA Markings and Obstructions	47 CFR 1.1307(8)

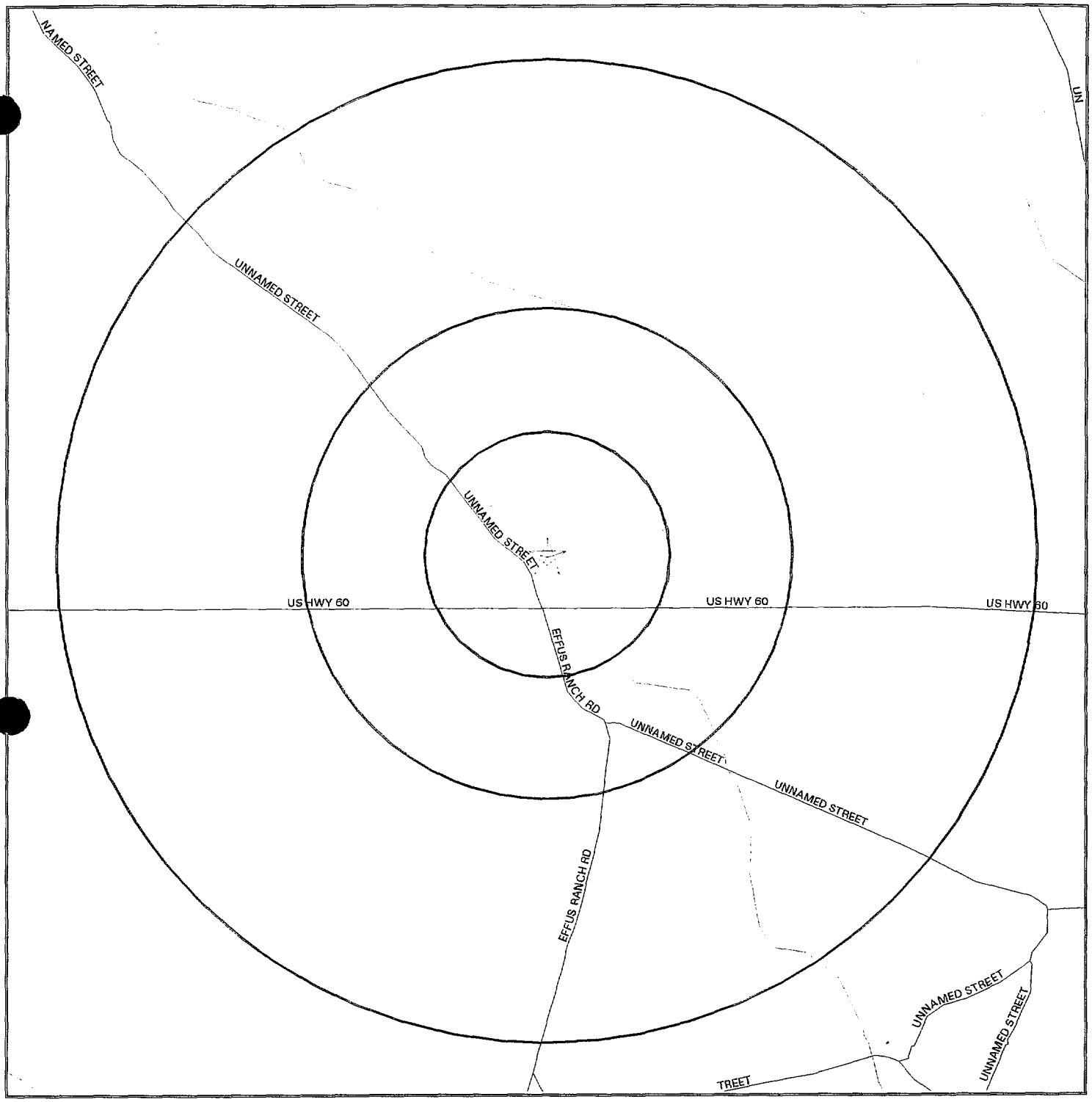
Key Contacts and Government Records Searched

MAP FINDINGS SUMMARY

The databases searched in this report are listed below. Database descriptions and other agency contact information is contained in the Key Contacts and Government Records Searched section on page 17 of this report.

Database	Search Distance (Miles)	Item within Search Distance	Item within 1/8 mile of Target Property
Federal Lands	1.00	NO	NO
Wilderness Areas	1.00	NO	NO
NEPAHIST	1.00	NO	NO
FLOODPLAIN	1.00	YES	YES
NWI	1.00	NO	NO
FCC Cellular	1.00	NO	NO
FCC Antenna	1.00	NO	NO
FCC Tower	1.00	NO	NO
FCC AM Tower	1.00	NO	NO
FAA DOF	1.00	NO	NO

Natural Areas Map



☆ Target Property
Roads
Waterways
State Natural/Wildlife Locations
State Natural/Wildlife Features
Federal Natural/Wildlife Features

0 1/4 1/2 1 Miles

N

TARGET PROPERTY:	Forepaugh Mineral Pit	CUSTOMER:	Brown & Caldwell Consultants
ADDRESS:	West Highway 60	CONTACT:	Janice Petticrew
CITY/STATE/ZIP:	Wickenburg AZ 85390	INQUIRY #:	0527141.7r
LAT/LONG:	33.9444 / 112.9361	DATE:	August 10, 2000

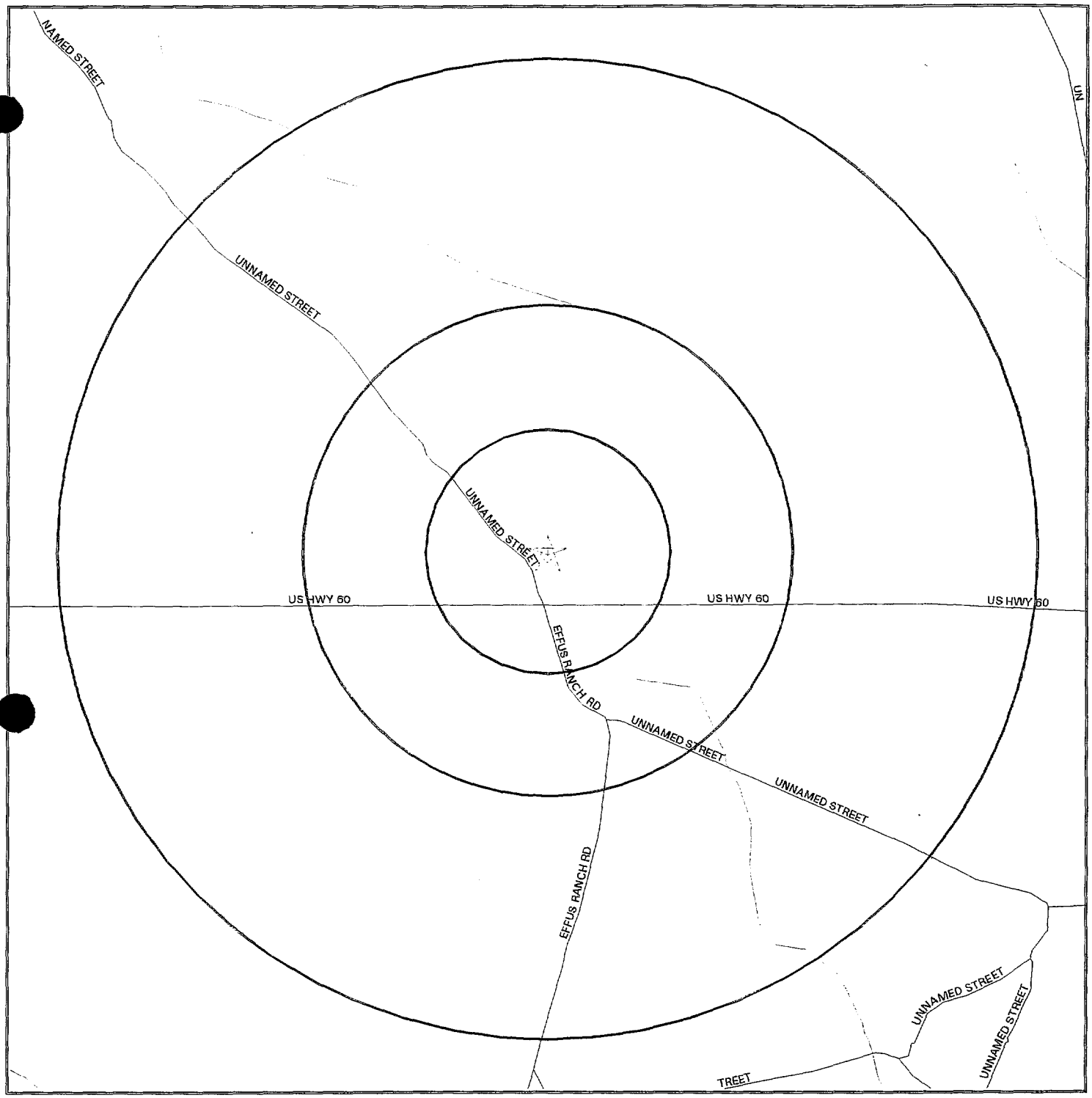
NATURAL AREAS MAP FINDINGS

Map ID
Direction
Distance
Distance (ft.) Site

EDR ID
Database

No Sites Reported.

Historic Places Map



Streets
Waterways
Water
Historic Sites
Historic Areas
Scenic Trail

0 1/4 1/2 1 Miles

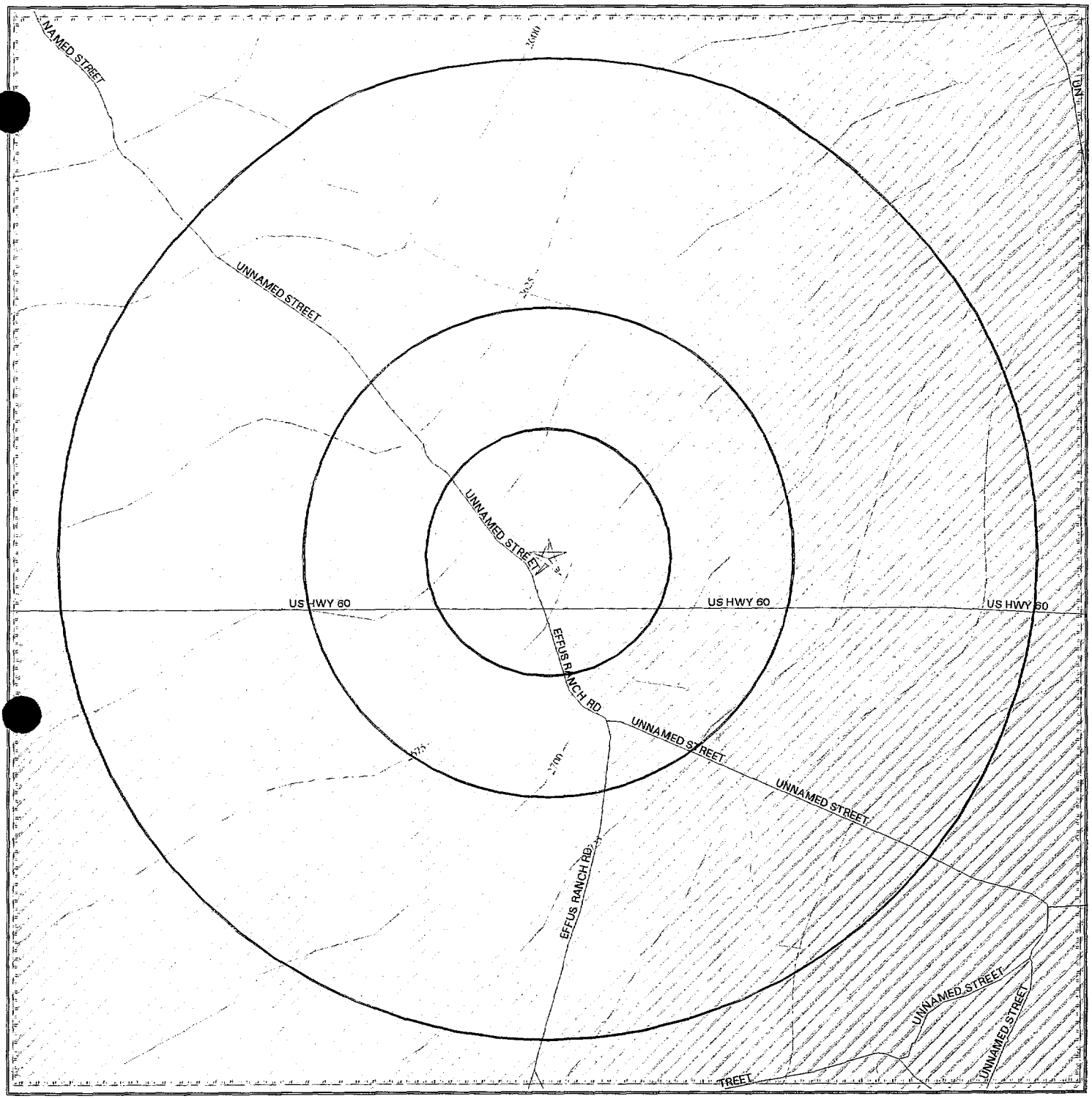
TARGET PROPERTY:	Forepaugh Mineral Pit	CUSTOMER:	Brown & Caldwell Consultants
ADDRESS:	West Highway 60	CONTACT:	Janice Petticrew
CITY/STATE/ZIP:	Wickenburg AZ 85390	INQUIRY #:	0527141.7r
LAT/LONG:	33.9444 / 112.9361	DATE:	August 10, 2000

HISTORIC PLACES MAP FINDINGS

Map ID Direction Distance Distance (ft.)	EDR ID Database

No Sites Reported.

Flood Plain Map



Major Roads
Contour Lines
Waterways
County Boundary
Power Lines
Pipe Lines
Fault Lines
Water
100-year flood zone
500-year flood zone
Electronic FEMA data available
Electronic FEMA data not available

0 1/4 1/2 1 Miles

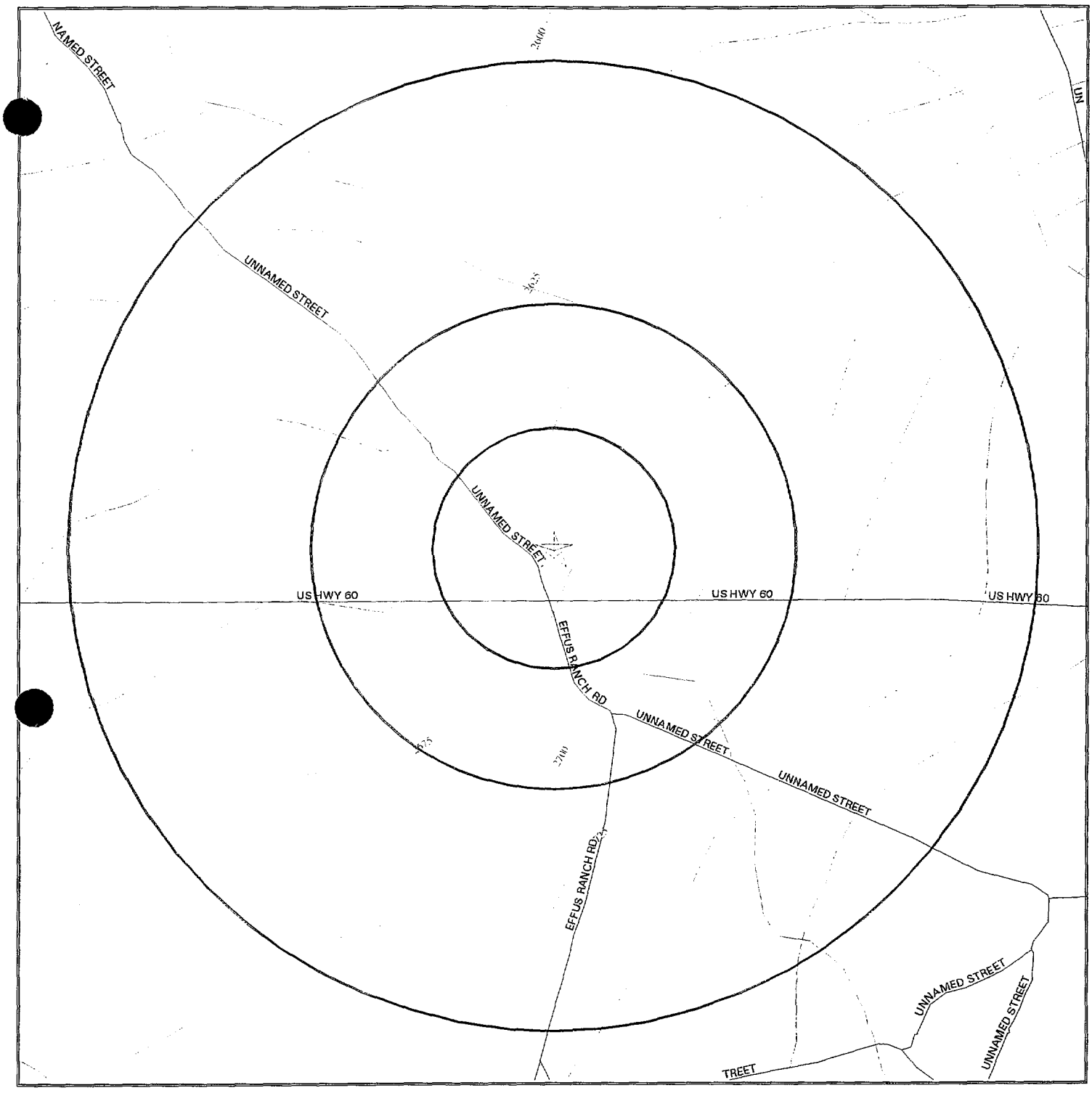
TARGET PROPERTY:	Forepaugh Mineral Pit	CUSTOMER:	Brown & Caldwell Consultants
ADDRESS:	West Highway 60	CONTACT:	Janice Petticrew
CITY/STATE/ZIP:	Wickenburg AZ 85390	INQUIRY #:	0527141.7r
LAT/LONG:	33.9444 / 112.9361	DATE:	August 10, 2000

FLOOD PLAIN MAP FINDINGS

Source: FEMA Q3 Flood Data

County	FEMA flood data electronic coverage
MARICOPA, AZ	YES
Flood Plain panel at target property:	04013C0225D / CWNP
Additional Flood Plain panel(s) in search area:	None Reported

National Wetlands Inventory Map



Major Roads
Contour Lines
Waterways
County Boundary

Power Lines
Pipe Lines
Fault Lines

Water
Wetlands
Electronic NWI data available
Electronic NWI data not available

0 1/4 1/2 1 Miles

TARGET PROPERTY:	Forepaugh Mineral Pit	CUSTOMER:	Brown & Caldwell Consultants
ADDRESS:	West Highway 60	CONTACT:	Janice Petticrew
CITY/STATE/ZIP:	Wickenburg AZ 85390	INQUIRY #:	0527141.7r
LAT/LONG:	33.9444 / 112.9361	DATE:	August 10, 2000

WETLANDS MAP FINDINGS

Source: Fish and Wildlife Service NWI data

NWI hardcopy map at target property: Not reported in source data
Additional NWI hardcopy map(s) in search area:
Not reported in source data

Map ID Direction Distance Distance (ft.)	Code and Description*	Database

No Sites Reported.

*See Wetland Classification System for additional information.

WETLANDS CLASSIFICATION SYSTEM

National Wetland Inventory Maps are produced by the U.S. Fish and Wildlife Service, a sub-department of the U.S. Department of the Interior. In 1974, the U.S. Fish and Wildlife Service developed a criteria for wetland classification with four long range objectives:

- to describe ecological units that have certain homogeneous natural attributes,
- to arrange these units in a system that will aid decisions about resource management,
- to furnish units for inventory and mapping, and
- to provide uniformity in concepts and terminology throughout the U.S.

High altitude infrared photographs, soil maps, topographic maps and site visits are the methods used to gather data for the productions of these maps. In the infrared photos, wetlands appear as different colors and these wetlands are then classified by type. Using a hierarchical classification, the maps identify wetland and deepwater habitats according to:

- system
- subsystem
- class
- subclass
- modifiers

(as defined by Cowardin, et al. U.S. Fish and Wildlife Service FWS/OBS 79/31. 1979.)

The classification system consists of five systems:

1. marine
2. estuarine
3. riverine
4. lacustrine
5. palustrine

The marine system consists of deep water tidal habitats and adjacent tidal wetlands. The riverine system consists of all wetlands contained within a channel. The lacustrine systems includes all nontidal wetlands related to swamps, bogs & marshes. The estuarine system consists of deepwater tidal habitats and where ocean water is diluted by fresh water. The palustrine system includes nontidal wetlands dominated by trees and shrubs and where salinity is below .5% in tidal areas. All of these systems are divided in subsystems and then further divided into class.

National Wetland Inventory Maps are produced by transferring gathered data on a standard 7.5 minute U.S.G.S. topographic map. Approximately 52 square miles are covered on a National Wetland Inventory map at a scale of 1:24,000. Electronic data is compiled by digitizing these National Wetland Inventory Maps.

SYSTEM — **MARINE**

SUBSYSTEM — **1 - SUBTIDAL** — **2 - INTERTIDAL**

CLASS	Subclass
RB-ROCK BOTTOM	1 Bedrock 2 Rubble
UB-UNCONSOLIDATED BOTTOM	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic
AB-AQUATIC BED	1 Algal 3 Rooted Vascular 5 Unknown Submergent
RF-REEF	1 Coral 3 Worm
OW-OPEN WATER / Unknown Bottom	
AB-AQUATIC BED	1 Algal 3 Rooted Vascular 5 Unknown Submergent
RF-REEF	1 Coral 3 Worm
RS-ROCKY SHORE	1 Bedrock 2 Rubble
US-UNCONSOLIDATED SHORE	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic

SYSTEM — **E - ESTUARINE**

SUBSYSTEM — **1 - SUBTIDAL**

CLASS	Subclass
RB-ROCK BOTTOM	1 Bedrock 2 Rubble
UB-UNCONSOLIDATED BOTTOM	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic
AB-AQUATIC BED	1 Algal 3 Rooted Vascular 4 Floating Vascular 5 Unknown Submergent 6 Unknown Surface
RF-REEF	2 Mollusk 3 Worm
OW-OPEN WATER / Unknown Bottom	

SUBSYSTEM — **2 - INTERTIDAL**

CLASS	Subclass
AB-AQUATIC BED	1 Algal 3 Rooted Vascular 4 Floating Vascular 5 Unknown Submergent 6 Unknown Surface
RF-REEF	2 Mollusk 3 Worm
SB - STREAMBED	1 Cobble- Gravel 2 Sand 3 Mud 4 Organic
RS-ROCKY SHORE	1 Bedrock 2 Rubble
US-UNCONSOLIDATED SHORE	1 Cobble- Gravel 2 Sand 3 Mud 4 Organic
EM-EMERGENT	1 Persistent 2 Nonpersistent
SS-SCRUB SHRUB	1 Broad-Leaved Deciduous 2 Needle-Leaved Deciduous 3 Broad-Leaved Evergreen 4 Needle-Leaved Evergreen 5 Dead 6 Deciduous 7 Evergreen
FO-FORESTED	1 Broad-Leaved Deciduous 2 Needle-Leaved Deciduous 3 Broad-Leaved Evergreen 4 Needle-Leaved Evergreen 5 Dead 6 Deciduous 7 Evergreen

SYSTEM — **R - RIVERINE**

SUBSYSTEM	1 - TIDAL	2 - LOWER PERENNIAL	3 - UPPER PERENNIAL	4 - INTERMITTENT	5 - UNKNOWN PERENNIAL
CLASS	RB-ROCK BOTTOM	UB-UNCONSOLIDATED BOTTOM	*SB-STREAMBED	AB-AQUATIC BED	RS-ROCKY SHORE	US-UNCONSOLIDATED SHORE	**EM-EMERGENT	OW-OPEN WATER/ Unknown Bottom
Subclass	1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic	1 Bedrock 2 Rubble 3 Cobble-Gravel 4 Sand 5 Mud 6 Organic 7 Vegetated	1 Algal 2 Aquatic Moss 3 Rooted Vascular 4 Floating Vascular 5 Unknown Submergent 6 Unknown Surface	1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic 5 Vegetated	2 Nonpersistent	

* STREAMBED is limited to TIDAL and INTERMITTENT SUBSYSTEMS, and comprises the only CLASS in the INTERMITTENT SUBSYSTEM.
**EMERGENT is limited to TIDAL and LOWER PERENNIAL SUBSYSTEMS.

SYSTEM — **L - LACUSTRINE**

SUBSYSTEM — **1 - LIMNETIC**

CLASS	RB-ROCK BOTTOM	UB-UNCONSOLIDATED BOTTOM	AB-AQUATIC BED	OW-OPEN WATER/ Unknown Bottom
Subclass	1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic	1 Algal 2 Aquatic Moss 3 Rooted Vascular 4 Floating Vascular 5 Unknown Submergent 6 Unknown Surface	

SUBSYSTEM — **2 - LITTORAL**

CLASS	RB-ROCK BOTTOM	UB-UNCONSOLIDATED BOTTOM	AB-AQUATIC BED	RS-ROCKY SHORE	US-UNCONSOLIDATED SHORE	EM-EMERGENT	OW-OPEN WATER/ Unknown Bottom
Subclass	1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic	1 Algal 2 Aquatic Moss 3 Rooted Vascular 4 Floating Vascular 5 Unknown Submergent 6 Unknown Surface	1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic 5 Vegetated	2 Nonpersistent	

SUBSYSTEM

P - PALUSTRINE

CLASS	RB--ROCK BOTTOM	UB--UNCONSOLIDATED BOTTOM	AB-AQUATIC BED	US--UNCONSOLIDATED SHORE	ML--MOSS-LICHEN	EM--EMERGENT	SS--SCRUB-SHRUB	FO--FORESTED	OW-OPEN WATER/ Unknown
Bottom									
Subclass	1 Bedrock 2 Rubble 3 Mud 4 Organic	1 Cobble-Gravel 2 Sand	1 Algal 2 Aquatic Moss 3 Rooted Vascular 4 Floating Vascular 5 Unknown Submergent 6 Unknown Surface	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic 5 Vegetated	1 Moss 2 Lichen	1 Persistent 2 Nonpersistent	1 Broad-Leaved Deciduous 2 Needle-Leaved Deciduous 3 Broad-Leaved Evergreen 4 Needle-Leaved Evergreen 5 Dead 6 Deciduous 7 Evergreen	1 Broad-Leaved Deciduous 2 Needle-Leaved Deciduous 3 Broad-Leaved Evergreen 4 Needle-Leaved Evergreen 5 Dead 6Deciduous 7 Evergreen	

MODIFIERS

In order to more adequately describe wetland and deepwater habitats one or more of the water regime, water chemistry, soil, or special modifiers may be applied at the class or lower level in the hierarchy. The farmed modifier may also be applied to the ecological system.

WATER REGIME

Non-Tidal

A Temporarily Flooded
B Saturated
C Seasonally Flooded
D Seasonally Flooded/ Well Drained
E Seasonally Flooded/ Saturated
F Semipermanently Flooded
G Intermittently Exposed

Tidal

H Permanently Flooded
J Intermittently Flooded
K Artificially Flooded
W Intermittently Flooded/Temporary
Y Saturated/Semipermanent/ Seasonal
Z Intermittently Exposed/Permanent
U Unknown

CoastalHalinityInlandSalinitypHModifiersfor

K Artificially Flooded
L Subtidal
M Irregularly Exposed
N Regularly Flooded
P Irregularly Flooded

*S Temporary-Tidal
*R Seasonal-Tidal
*T Semipermanent -Tidal
V Permanent -Tidal
U Unknown

*These water regimes are only used in tidally influenced, freshwater systems.

WATER CHEMISTRY

1 Hyperhaline
2 Euhaline
3 Mixohaline (Brackish)
4 Polyhaline
5 Mesohaline
6 Oligohaline
0 Fresh

7 Hypersaline
8 Eusaline
9 Mixosaline
0 Fresh

all Fresh Water

a Acid
t Circumneutral
i Alkaline

SOIL

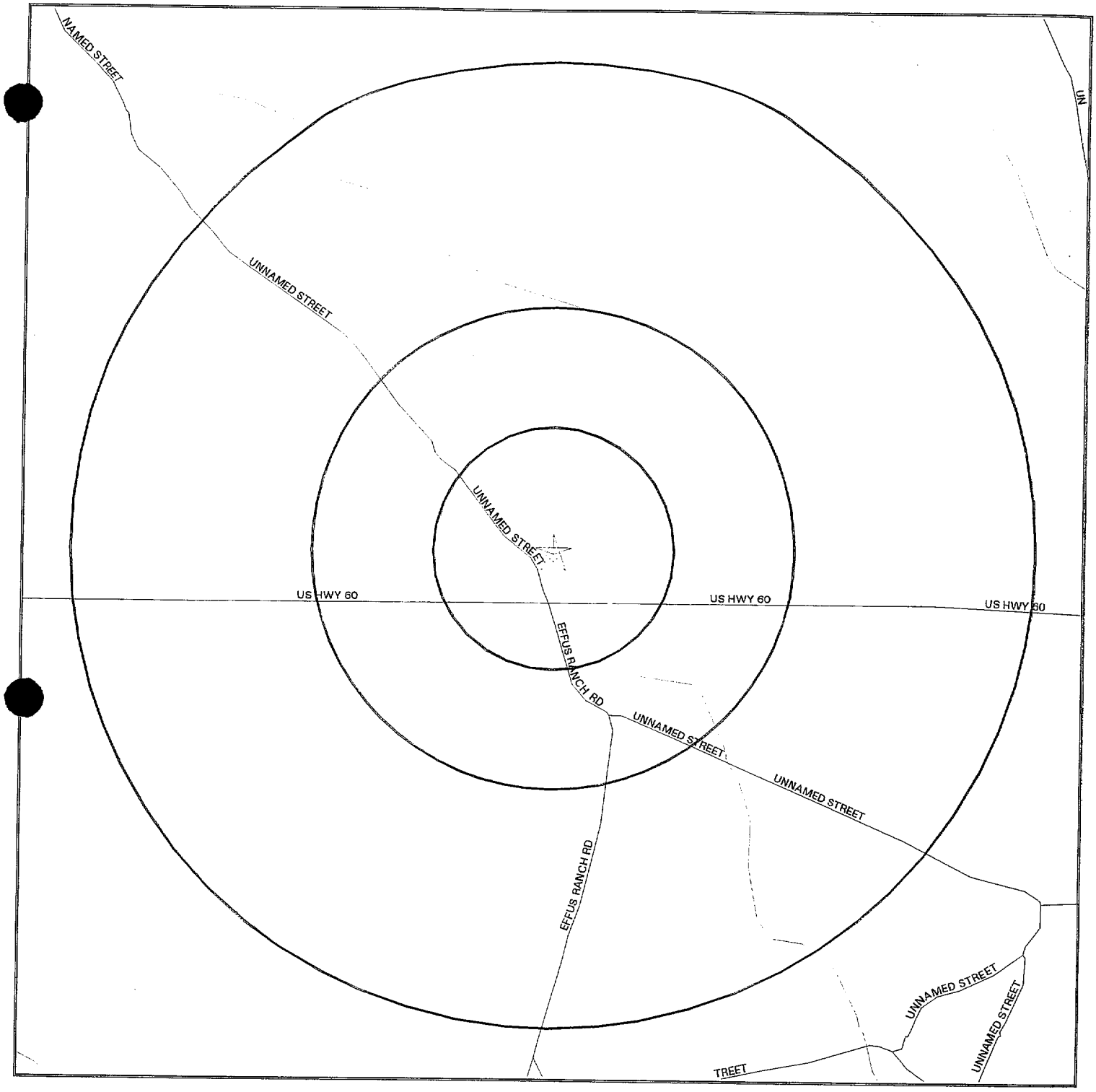
g Organic
n Mineral

SPECIAL MODIFIERS

b Beaver
d Partially Drained/Ditched
f Farmed
h Diked/Impounded
r Artificial Substrate
s Spoil
x Excavated

Source: U.S. Department of the Interior
Fish and Wildlife Service
National Wetlands Inventory

FCC & FAA Sites Map



Streets
Waterways
Water

Sites
Omni Directional AM Interference
Directional AM Interference

0 1/4 1/2 1 Miles

TARGET PROPERTY:	Forepaugh Mineral Pit	CUSTOMER:	Brown & Caldwell Consultants
ADDRESS:	West Highway 60	CONTACT:	Janice Petticrew
CITY/STATE/ZIP:	Wickenburg AZ 85390	INQUIRY #:	0527141.7r
LAT/LONG:	33.9444 / 112.9361	DATE:	August 10, 2000

FCC & FAA SITES MAP FINDINGS

Map ID
Direction
Distance
Distance (ft.)

EDR ID
Database

No Sites Reported.

KEY CONTACTS & GOVERNMENT RECORDS SEARCHED

Various Federal laws and executive orders address specific environmental concerns. NEPA requires the responsible offices to integrate to the greatest practical extent the applicable procedures required by these laws and executive orders. EDR provides key contacts at agencies charged with implementing these laws and executive orders to supplement the information contained in this report.

NATURAL AREAS
Officially designated wilderness areas
Government Records Searched in This Report

FED_LAND: Federal Lands
Source: USGS
Telephone: 703-648-5094
Federal data from Bureau of Land Management, National Park Service and Forest Service and Fish and Wildlife Service.
- National Parks
- Forests
- Monuments
- Wildlife Sanctuaries, Preserves, Refuges
- Federal Wilderness Areas.

Date of Government Version: 09/01/1997

Federal Contacts for Additional Information

National Park Service, Intermountain Region
12795 Alameda Parkway
Denver, CO 80225
303-969-2500

USDA Forest Service, Southwestern
Federal Building 517 Gold Avenue, S.W.
Albuquerque, NM 87102
505-842-3214

BLM - Arizona State Office
222 N. Central Ave.
Phoenix, AZ 85004-2203
602-417-9200

Fish & Wildlife Service, Region 2
P.O. Box 1306 500 Gold Ave., S.W.
Albuquerque, NM 87103
505-248-6925

Officially designated wildlife preserves, sanctuaries and refuges
Government Records Searched in This Report

FED_LAND: Federal Lands
Source: USGS
Telephone: 703-648-5094
Federal data from Bureau of Land Management, National Park Service and Forest Service and Fish and Wildlife Service.
- National Parks
- Forests
- Monuments
- Wildlife Sanctuaries, Preserves, Refuges
- Federal Wilderness Areas.

Date of Government Version: 09/01/1997

KEY CONTACTS & GOVERNMENT RECORDS SEARCHED

Government Records Searched in This Report

AZ_WILDERNESS
Wilderness Areas
Includes Bureau of Land Management, US Forest Service, National Park Service and Fish and Wildlife Service Riparian Natural Conservation Areas, Wilderness Study areas and Wilderness or Primitive areas
Source: State Land Dept.
Telephone: 602-542-4709

Federal Contacts for Additional Information

Fish & Wildlife Service, Region 2
P.O. Box 1306 500 Gold Ave., S.W.
Albuquerque, NM 87103
505-248-6925

State Contacts for Additional Information

Department of Fish & Game 602-942-3000

Wild and scenic rivers

Government Records Searched in This Report

FED_LAND: Federal Lands
Source: USGS
Telephone: 703-648-5094
Federal data from Bureau of Land Management, National Park Service and Forest Service and Fish and Wildlife Service.
- National Parks
- Forests
- Monuments
- Wildlife Sanctuaries, Preserves, Refuges
- Federal Wilderness Areas.

Date of Government Version: 09/01/1997

Federal Contacts for Additional Information

Fish & Wildlife Service, Region 2
P.O. Box 1306 500 Gold Ave., S.W.
Albuquerque, NM 87103
505-248-6925

Endangered Species

Federal Contacts for Additional Information

Fish & Wildlife Service, Region 2
P.O. Box 1306 500 Gold Ave., S.W.
Albuquerque, NM 87103
505-248-6925

State Contacts for Additional Information

Heritage Data Mgmt. System, Game & Fish Department 602-789-3612

KEY CONTACTS & GOVERNMENT RECORDS SEARCHED

LANDMARKS, HISTORICAL, AND ARCHEOLOGICAL SITES
Historic Places
Government Records Searched in This Report
National Register of Historic Places:
The National Register of Historic Places is the official federal list of districts, sites, buildings, structures, and objects significant in American history, architecture, archeology, engineering, and culture. These contribute to an understanding of the historical and cultural foundations of the nation.
The National Register includes:
- All prehistoric and historic units of the National Park System;
- National Historic Landmarks, which are properties recognized by the Secretary of the Interior as possessing national significance; and
- Properties significant in American, state, or local prehistory and history that have been nominated by State Historic Preservation Officers, federal agencies, and others, and have been approved for listing by the National Park Service.

Date of Government Version: 03/15/2000

FED_LAND: Federal Lands
Source: USGS
Telephone: 703-648-5094
Federal data from Bureau of Land Management, National Park Service and Forest Service and Fish and Wildlife Service.
- National Parks
- Forests
- Monuments
- Wildlife Sanctuaries, Preserves, Refuges
- Federal Wilderness Areas.

Date of Government Version: 09/01/1997

Federal Contacts for Additional Information
Park Service; Advisory Council on Historic Preservation
1849 C Street NW
Washington, DC 20240
Phone: (202) 208-6843

State Contacts for Additional Information
Arizona State Parks 602-542-4174

Indian Religious Sites
Federal Contacts for Additional Information
Department of the Interior- Bureau of Indian Affairs
Office of Public Affairs
1849 C Street, NW
Washington, DC 20240-0001
Office: 202-208-3711
Fax: 202-501-1516

National Association of Tribal Historic Preservation Officers
1411 K Street NW, Suite 700
Washington, DC 20005
Phone: 202-628-8476
Fax: 202-628-2241

KEY CONTACTS & GOVERNMENT RECORDS SEARCHED

State Contacts for Additional Information
Navajo Area Office (Navajo Reservations Only), Bureau of Indian Affairs
P.O. Box 1060
Gallup, NM 87305
505-863-8314

Phoenix Area Office, Bureau of Indian Affairs
One North First Street P.O. Box 10
Phoenix, AZ 85001
602-379-6600

Historic Preservation Department
P.O. Box 4950
Window Rock, AZ 86515

Office of Cultural Resources, Hualapai Tribe
P.O. Box 310
Peach Springs, AZ 86434

White MT. Apache Tribe
P.O. Box 1150
Whiteriver, AZ 85941

FLOOD PLAIN, WETLANDS AND COASTAL ZONE

Flood Plain Management

Government Records Searched in This Report
Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 1999 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

Federal Contacts for Additional Information
Federal Emergency Management Agency 877-3362-627

State Contacts for Additional Information
Division of Emergency Management 602-231-6242

Wetlands Protection

Government Records Searched in This Report
NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 1999 from the U.S. Fish and Wildlife Service.

Federal Contacts for Additional Information
Fish & Wildlife Service 813-570-5412

State Contacts for Additional Information
Game & Fish Department 602-942-3000

KEY CONTACTS & GOVERNMENT RECORDS SEARCHED

Coastal Zone Management
Government Records Searched in This Report
CAMA Management Areas
Dept. of Env., Health & Natural Resources
919-733-2293

Federal Contacts for Additional Information
Office of Ocean and Coastal Resource Management
N/ORM, SSMC4
1305 East-West Highway
Silver Spring, Maryland 20910
301-713-3102

State Contacts for Additional Information

FCC & FAA SITES MAP
For NEPA actions that come under the authority of the FCC, the FCC requires evaluation of Antenna towers and/or supporting structures that are to be equipped with high intensity white lights which are to be located in residential neighborhoods, as defined by the applicable zoning law.

Government Records Searched in This Report
Cellular
Federal Communications Commission
Mass Media Bureau
2nd Floor - 445 12th Street SW
Washington DC 20554 USA
Telephone (202) 418-2700

Tower
Federal Communications Commission
Mass Media Bureau
2nd Floor - 445 12th Street SW
Washington DC 20554 USA
Telephone (202) 418-2700

Antenna Registration
Federal Communications Commission
Mass Media Bureau
2nd Floor - 445 12th Street SW
Washington DC 20554 USA
Telephone (202) 418-2700

AM Tower
Federal Communications Commission
Mass Media Bureau
2nd Floor - 445 12th Street SW
Washington DC 20554 USA
Telephone (202) 418-2700

KEY CONTACTS & GOVERNMENT RECORDS SEARCHED

FAA Digital Obstacle File
National Oceanic and Atmospheric Administration
Telephone: 301-436-8301
Describes known obstacles of interest to aviation users in the US. Used by the Federal Aviation Administration (FAA) and the National Oceanic and Atmospheric Administration to manage the National Airspace System.

OTHER CONTACT SOURCES

NEPA Single Point of Contact
State Contacts for Additional Information
Arizona State Clearinghouse
3800 N. Central Avenue
Fourtheenth Floor
Phoenix, AZ 85012
602-280-1315

Excessive Radio Frequency Emission
For NEPA actions that come under the authority of the FCC, Commission actions granting construction permits, licenses to transmit or renewals thereof, equipment authorizations or modifications in existing facilities, require the determination of whether the particular facility, operation or transmitter would cause human exposure to levels of radio frequency in excess of certain limits.

Federal Contacts for Additional Information
Office of Engineering and Technology
Federal Communications Commission
445 12th Street SW
Washington, DC 20554
Phone: 202-418-2470

APPENDIX E

ARCHAEOLOGY SURVEY

A CULTURAL RESOURCES SURVEY OF 40 ACRES OF ARIZONA STATE TRUST LAND APPROXIMATELY 12 MILES WEST OF WICKENBURG, NORTHWESTERN MARICOPA COUNTY, ARIZONA

by

Mary K. Morrison

Prepared for:

Brown and Caldwell
Environmental Engineering and Consulting
3636 North Central Avenue, Suite 200
Phoenix, Arizona 85012-1931

Submitted by:

Lyle M. Stone, Ph.D.
Archaeological Research Services, Inc.
Tempe, Arizona

August 29, 2000

Archaeological Research Services, Inc. Project Report No. 2000:049

Archaeological Research Services, Inc. - Since 1974
Offices in:

Tempe, Arizona Tubac, Arizona Tucson, Arizona Prescott Valley, Arizona

ABSTRACT

On August 22, 2000, Archaeological Research Services, Inc. (ARS) conducted a Class III (Intensive Field Inventory) Cultural Resources (archaeological) survey of a 40 acre (17 hectare) parcel of Arizona State Trust Land (administered by the Arizona State Land Department) approximately 12 miles (20 kilometers) west of Wickenburg, northwestern Maricopa County, Arizona. Fieldwork was carried out under the conditions and authority of Arizona State Museum Blanket Permit No. 2000-24bl for non-collection, non-disturbance surveys. The survey was initiated at the request of Brown and Caldwell Environmental Engineering and Consulting in order to identify, record, and evaluate any cultural resources—which may include historic or prehistoric archaeological sites or objects, historically or architecturally significant structures, buildings, or landscapes, and traditional cultural properties—that could be disturbed by a proposed mineral resources pit expansion, and which could be eligible—or potentially eligible—for inclusion in the National Register of Historic Places (NRHP).

The survey area consists of a square parcel measuring 1320 feet by 1320 feet (402 meters per side), and is located within the SW¼ of the SE¼ of Section 13, Township 7 North, Range 7 West (USGS Outlaw Hill, Ariz. 7.5' 1990).

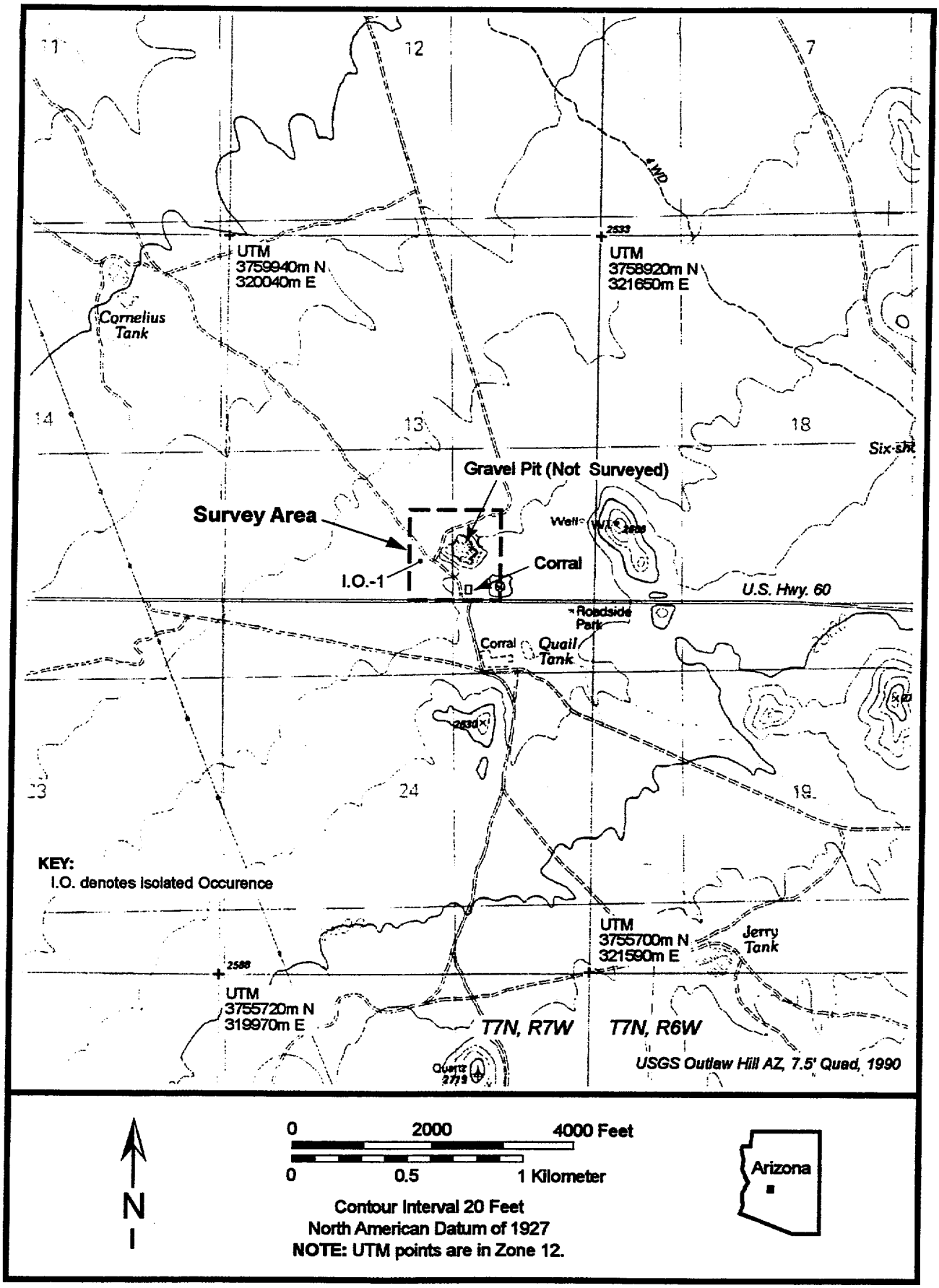
As result of this survey, one isolated artifact occurrence was identified and recorded within the project area. Based on the results of the study, no historic properties will be affected by the proposed mineral resources pit expansion.

INTRODUCTION

On August 22, 2000, Mary K. Morrison and Lisa Milano of Archaeological Research Services, Inc. (ARS) completed a Class III (Intensive Field Inventory) Cultural Resources (archaeological) survey of a 40 acre (17 hectare) parcel of Arizona State Trust Land (administered by the Arizona State Land Department) approximately 12 miles (20 kilometers) west of Wickenburg, northwestern Maricopa County, Arizona (**Figure 1**). The survey area consists of a square parcel measuring 1320 feet by 1320 feet (402 meters per side), and is located within the SW¼ of the SE¼ of Section 13, Township 7 North, Range 7 West (USGS Outlaw Hill, Ariz. 7.5' 1990). Fieldwork was carried out under the conditions and authority of Arizona State Museum Blanket Permit No. 2000-24bl for non-collection, non-disturbance surveys. The survey was initiated at the request of Brown and Caldwell Environmental Engineering and Consulting in order to identify, record, and evaluate any cultural resources—which may include historic or prehistoric archaeological sites or objects, historically or architecturally significant structures, buildings, or landscapes, and traditional cultural properties—that could be disturbed by a proposed mineral resources pit expansion, and which could be eligible—or potentially eligible—for inclusion in the National Register of Historic Places (NRHP).

The study area lies within the Arizona Upland Subdivision of the Sonoran Desertscrub biotic community (Turner and Brown 1994) within the Basin and Range Physiographic Province of Arizona (Hendricks 1985). The parcel is located on a gently sloping bajada 2.5 miles (4.1 kilometers) northwest of the Vulture Mountains, and is bounded on the south by U.S. Highway 60. The survey area ranges in elevation from 2600 feet (524.93 meters) to 2675 feet (792.48 meters)

Figure 1. Location of Project Survey Area.



above mean sea level, increasing in elevation to the southeast toward the Vulture Mountains. Vegetation within and surrounding the parcel consists primarily of creosotebush and mesquite and a sparse distribution of prickly pear cacti, jumping cholla cacti, and soaptree yucca. The survey parcel has been impacted by a currently inactive gravel pit measuring 656 feet (200 meters) east-west and 524 feet (160 meters) north-south. A modern corral, measuring about 66 feet (20 meters) east-west by 132 feet (40 meters) north-south, is also located south of the gravel pit. Numerous rock piles and several pits within the survey parcel appear to be associated with the old gravel pit. Modern trash observed during the survey includes bottles and cans, mostly in the vicinity of U.S. 60 and within the existing gravel pit.

STUDY PROCEDURES

Prior to the initiation of fieldwork, archaeological and historical site records on file at ARS, the Arizona State Historic Preservation Office, and the Arizona State Museum were reviewed to determine if important cultural resources had been previously identified within or immediately adjacent to the project area. A General Land Office (GLO) plat of Township 7 South, Range 7 West (# 2785, filed September 18, 1916) on file at the U.S. Bureau of Land Management (State Office) was also reviewed to determine the potential presence/absence of significant cultural resources.

The existing, inactive gravel pit was not surveyed because this area, totaling about 8 acres, no longer contains any potential for surface or subsurface cultural resources. The remaining 32 acres were subjected to a Class III (Intensive Field Inventory) non-collection, no disturbance cultural resources (archaeological) survey that resulted in 100 percent coverage of the ground surface. Survey procedure consisted of two archaeologists walking a series of north-south, compass-oriented, parallel transects spaced 50 feet (15 meters) apart in order to observe surface evidence of cultural resources.

STUDY RESULTS

A review of the above-cited site file sources indicated that only one cultural resources survey had been previously conducted within approximately one mile (1.6 kilometers) of the project area. This survey examined a series of construction access roads along the Lake Mead to Phoenix 500kV transmission line, and located numerous archaeological sites between the Phoenix area and Boulder City, Nevada (Purcell and Chadderdon 1996). One of these sites, AZ T:1:3 (ASM), is located 0.70 miles (1.13 kilometers) southwest of the current project area. The site, which consists of two rock clusters, a mano, and a quartz hammerstone, was interpreted as a prehistoric camp of unknown cultural affiliation.

As a result of the present survey, one isolated artifact occurrence was identified within the surveyable portion of the project area. This isolated artifact occurrence is plotted on **Figure 1** and described below.

Isolated Artifact Occurrence

One isolated artifact occurrence, a basalt core fragment designated as IO-1, was located and recorded during the present survey parcel. The artifact is located at UTM zone 12 coordinates 320870mE and 3757500mN, or approximately 550 feet (168 meters) north of U.S. 60 and 150 feet (46 meters) east of the western project area boundary. This isolated occurrence does not define or reflect significant cultural resource values in terms of NRHP eligibility criteria. Its data potential has been effectively exhausted through field recordation, and no further preservation or avoidance measures are recommended.

CONCLUSIONS AND RECOMMENDATIONS

On August 22, 2000, Archaeological Research Services, Inc.(ARS) conducted a Class III (Intensive Field Inventory) Cultural Resources (archaeological) survey of a 40 acre (17 hectare) parcel of Arizona State Trust Land (administered by the Arizona State Land Department) approximately 12 miles (20 kilometers) west of Wickenburg, northwestern Maricopa County, Arizona. Fieldwork was carried out under the conditions and authority of Arizona State Museum Blanket Permit No. 2000-24bl for non-collection, non-disturbance surveys. The survey was initiated at the request of Brown and Caldwell Environmental Engineering and Consulting in order to identify, record, and evaluate any cultural resources—which may include historic or prehistoric archaeological sites or objects, historically or architecturally significant structures, buildings, or landscapes, and traditional cultural properties—that could be disturbed by a proposed mineral resources pit expansion and which could be eligible—or potentially eligible—for inclusion in the National Register of Historic Places.

As a result of this study, no significant cultural resources were identified, and no historic properties will be affected by the proposed mineral resources pit expansion.

REFERENCES CITED

Hendricks, David M.

1985 *Arizona Soils.* Plate 2. College of Agriculture, University of Arizona, Tucson, Arizona.

Purcell, David E., and Thomas Chadderdon

1996 *The Mead to Phoenix 500kV Transmission Line Project: An Intensive Archaeological Survey of Construction Access Roads in Clark County, Nevada, and Mohave, Yavapai, and Maricopa Counties, Arizona.* SWCA, Inc., Environmental Consultants, Flagstaff.

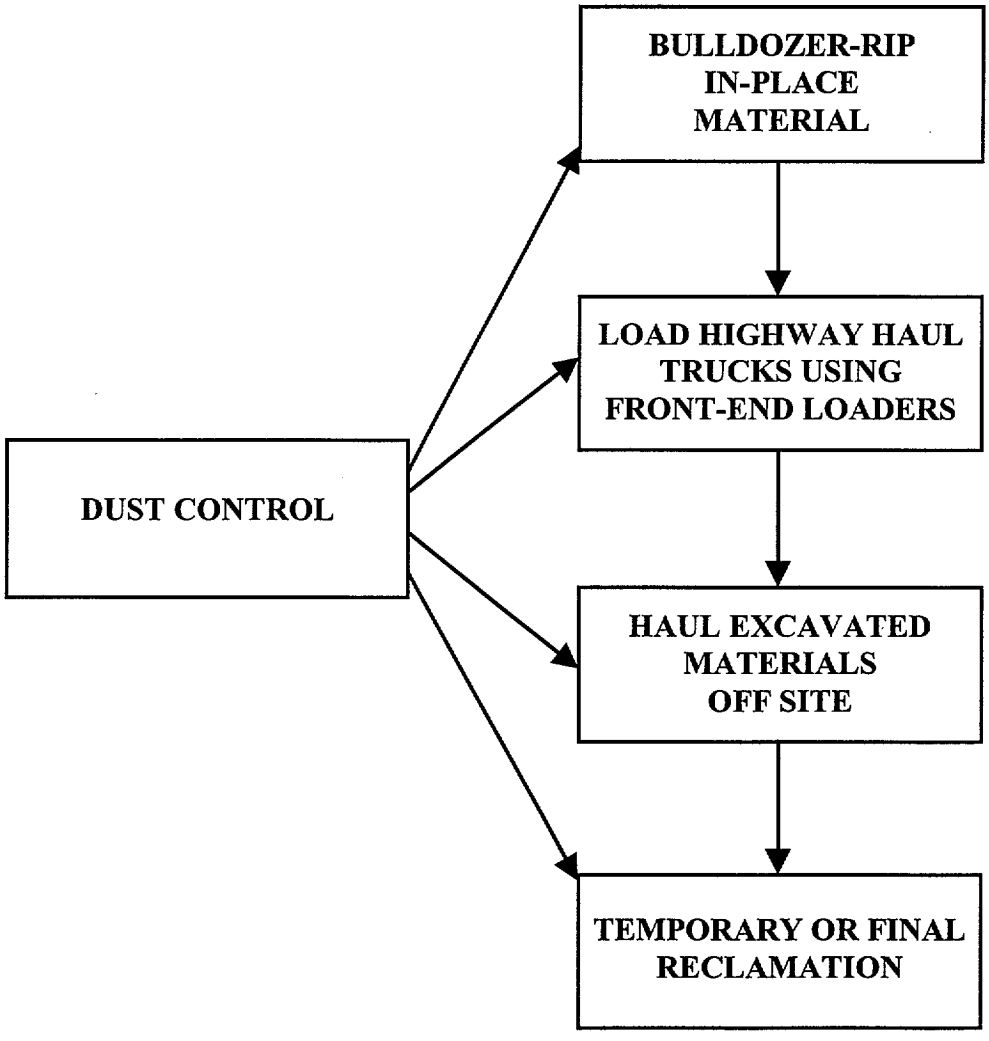
Turner, Raymond M., and David E. Brown

1994 Sonoran Desertscrub. In *Biotic Communities: Southwestern United States and Northwestern Mexico*, edited by David E. Brown, pp. 181–221. University of Utah Press, Salt Lake City.

APPENDIX F

PROPOSED PROCESS FLOWCHART

FLOWCHART OF MATERIAL HANDLING



APPENDIX G

MCDOT EMERGENCY RESPONSE PROCEDURES

Environmental Health & Safety Procedures

In case of a hazardous material spill or accident, the following procedures will be followed.

For immediate emergencies involving Fire, Gaseous chemical leaks, or Fatality:
Contact in this order:

1. **911-Emergancy**
2. **61-office**
3. **506-7179 Cell Phone (602)619-2580-Safety Office**
4. **Immediate Supervisor**

Do not attempt a rescue or cleanup to an unknown chemical until cleared by Safety Office.

Project cleanup

When assigned a project involving demolition or cleanup of property or sites, contact the Safety Office for a Phase 1 Environmental Assessment, prior to work commencement.506-7179

Discovery of an unknown material

When discovering an unknown chemical or possible illegal dump site contact:

1. **61-Office**
2. **506-7179/619-2580 Safety Office**

Discontinue work in the discovery site and wait for assistance from the Safety Office.

Emergency procedure in case of injury

If injured while on the job and immediate assistance is needed contact in this order:

1. **911-emergancy**
2. **61-Office**
3. **Immediate Supervisor**
4. **Safety Office-506-8654/8601**

For non-emergency but medical care is needed contact CompWorks 24-hour service at 800-378-8872.

APPENDIX H

OTHER ASLD DEPARTMENTAL APPROVALS

Jane Dee Hull
Governor

Michael E. Anable
State Land
Commissioner

Arizona
State Land Department

1616 West Adams Street Phoenix, AZ 85007 www.land.state.az.us

LB

Request for Comments

August 23, 2000

SLD Commercial Leasing

Applicant : **Maricopa County Dept. of Transportation**
Application #: **04-105774**
County : **Maricopa**
TRS: **T7N; R7W; Section 13**
Legal: **SWSE** Acreage: **40**

Application Type: **Mineral Materials**
Purpose: **Sand and Gravel operation**

The State Land Department would appreciate your written comments or recommendations relative to the above referenced application(s). Your comments will be considered in the review process and in the preparation of the Mine Operating Plan which includes an Environmental Assessment, and Reclamation and Closure Plan. The plan will be available for review upon completion. We ask that you respond within thirty (30) days of this notice and that a contact person be designated for follow-up on your comments. Please reference your comments to the Application number and Applicants name. The Department will processes each application on its merits.

A copy of the application, location map and description of the operation are attached for your reference. If you have any questions, I can be reached at (602)542-4628.

Sincerely,

Gary D. Slusher, Geologist
Minerals Section
Natural Resource Division

enclosures

8/29/00

Commercial Leasing has no existing or proposed leases in this area. We have no objection to this proposed use.

Jim

Jane Dee Hull
Governor

Michael E. Anable
State Land
Commissioner

Arizona
State Land Department

1616 West Adams Street Phoenix, AZ 85007 www.land.state.az.us

Request for Comments

August 23, 2000

SLD Sales Section

Applicant : **Maricopa County Dept. of Transportation**
Application #: **04-105774**
County : **Maricopa**
TRS: **T7N; R7W; Section 13**
Legal: **SWSE** Acreage: **40**

Application Type: **Mineral Materials**
Purpose: **Sand and Gravel operation**

The State Land Department would appreciate your written comments or recommendations relative to the above referenced application(s). Your comments will be considered in the review process and in the preparation of the Mine Operating Plan which includes an Environmental Assessment, and Reclamation and Closure Plan. The plan will be available for review upon completion. We ask that you respond within thirty (30) days of this notice and that a contact person be designated for follow-up on your comments. Please reference your comments to the Application number and Applicants name. The Department will processes each application on its merits.

A copy of the application, location map and description of the operation are attached for your reference. If you have any questions, I can be reached at (602)542-4628.

Sincerely,

Gary D. Slusher, Geologist
Minerals Section
Natural Resource Division

enclosures

Sales section has no applications in this section. 8/25/00

Jane Dee Hull
Governor

Michael E. Anable
State Land
Commissioner

Arizona
State Land Department

1616 West Adams Street Phoenix, AZ 85007 www.land.state.az.us

Request for Comments

August 23, 2000

SLD Planning Section

Applicant : **Maricopa County Dept. of Transportation**
Application #: **04-105774**
County : **Maricopa**
TRS: **T7N; R7W; Section 13**
Legal: **SWSE** Acreage: **40**

Application Type: **Mineral Materials**
Purpose: **Sand and Gravel operation**

The State Land Department would appreciate your written comments or recommendations relative to the above referenced application(s). Your comments will be considered in the review process and in the preparation of the Mine Operating Plan which includes an Environmental Assessment, and Reclamation and Closure Plan. The plan will be available for review upon completion. We ask that you respond within thirty (30) days of this notice and that a contact person be designated for follow-up on your comments. Please reference your comments to the Application number and Applicants name. The Department will processes each application on its merits.

A copy of the application, location map and description of the operation are attached for your reference. If you have any questions, I can be reached at (602)542-4628.

Sincerely,

Gary D. Slusher, Geologist
Minerals Section
Natural Resource Division

enclosures

No Plans in this area at this time. See no problem with land-use

Dwayne Will

APPENDIX I

GROSS RESOURCE CALCULATIONS

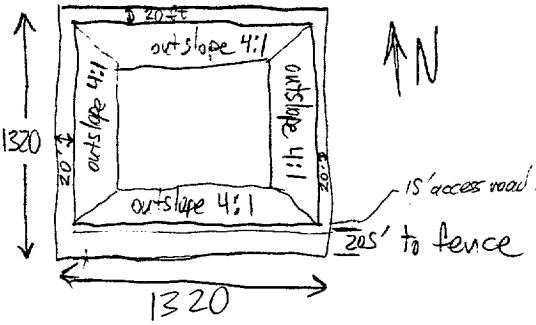
BROWN AND CALDWELL

Forepaugh Material Pit 10/25/2002

Gross Resource Calculation (Revised using 20ft setbacks)

Assumptions: 20 ft setback from property lines
4H:1V final slopes
25 ft final depth of excavation

Option 1: Removal of Corral for maximum mining resource.



↑N

East → West = 1320' − 2(20) setbacks − 2(50) = 1,180'
(50 = ½ of outslope triangle)

North → South = 1320' − 205 − 15 − 20 − 2(50) = 980'
(50 = ½ of outslope triangle)

Area = 1,180' × 980' = 26.5 acres
− 3.5 acres (existing pit) – from Autocad
23.0 acres mineable.

23.0 acres = 1,002,000 ft²

1,002,000 ft² × 25 ft depth = 25,050,000 ft³
= 927,800 cyd

assumed tonnage factor (1.5 tons/cyd) = 1,392,000 tons

Report: ~ 950,000 cyd
~ 1,400,000 tons

~ approximately

Registered Professional Engineer (Mining)
CERTIFICATE NO
31561
JAMES B. ROBISON
Date Signed 12/12/02
ARIZONA U.S.A.

JOB NUMBER	BY	SUBJECT	DATE	SHEET NO.
	LLM			

BCW026 (8/98)

BROWN AND CALDWELL

Forepaugh Material Pit

10/25/2000

see assumptions on page (1 of 2)

Option 2: Corral and South Fenced Area is left, mine to fence by US 60 elsewhere on south boundary.

calculation same as option 1

1,180' x 995' = 27.0 acres

- 3.6 acres (corral and fenced area)
- 0.6 acres (parking and access for corral)
- 3.5 acres (existing pit)

19.3 acres mineable.

19.3 acres = 840,711 ft²

840,711 ft² x 25 ft depth = 21,017,784 ft³

assumed tonnage factor (1.5 tons/cyd) = 778,000 cyds = 1,170,000 tons

Report: ~780,000 cyds ~1,200,000 tons

Registered Professional Engineer (Mining) CERTIFICATE NO 31561 JAMES B. ROBISON Date Signed 12/12/00 ARIZONA U.S.A.

~ approximately

JOB NUMBER	BY	SUBJECT	DATE	SHEET NO.
	LLM			